

MEDICAL RECORD



DECEMBER 1946

Vol. 159, No. 12



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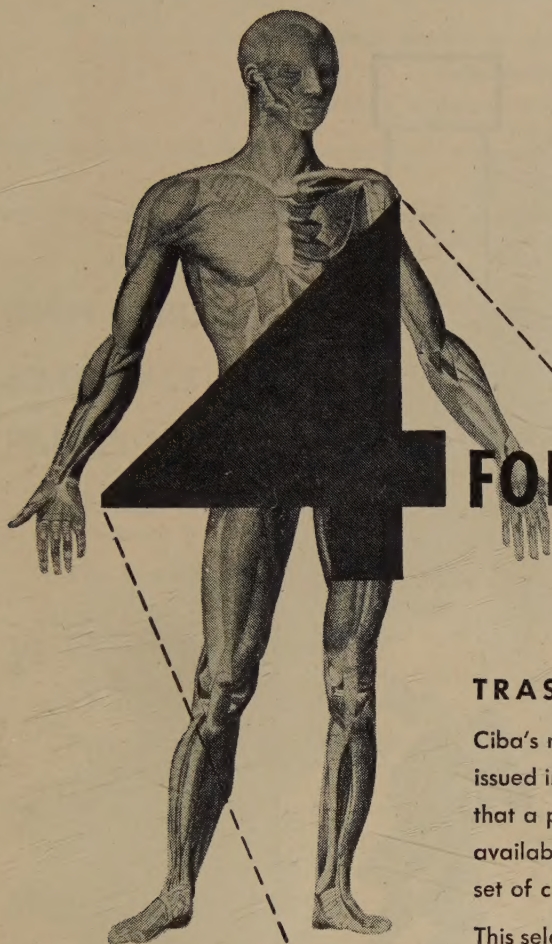
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Revision of Qualifications for Local Health Officers

According to *Health News*, November 4, 1946, the Public Health Council appointed a special committee to consider the advisability of amending the regulations of Chapter XI of the State Sanitary Code, relating to the qualifications for local health officers, Grade I.

Such a study seemed necessary because of the dearth of physicians qualified under the existing regulations, which has resulted from the inability to obtain physicians for training, replacements and new positions during the war. Moreover, the early retirement of the health commissioners of several large cities, and an expected increase in the demand for trained personnel because of the more liberal state aid for county health departments, made it apparent that the need for qualified health officers would be materially increased.

As a result of the committee's study and review of its findings by the council, proposals now under consideration include the establishment of three grades of health officers in place of the existing two grades. The present Grade I requirements would be retained but would apply only to health officers of city and county health districts having a population of more than 100,000. Such health officers would be designated as Grade I-A. The local health officers of cities having a population of 50,000 to

100,000, and health commissioners of counties having a population of 100,000 or less would be expected to possess the qualifications for Grade I-B health officers. The requirements for this grade would be somewhat less than existing Grade I qualifications; namely, the present requirement of four years of full-time experience would be reduced to three years and, in the case of the combined full-time experience and scholastic training, the amount of experience would be reduced from two years to one year.

It is also planned to establish qualifications for deputy health officers, a deputy being defined as a health officer designated or expected to act in behalf of the health commissioner of a large city or county health district when such commissioner is unable to act by reason of absence or disability. Full-time deputies would be required to possess the qualifications of a Grade I-B health officer; part-time, those of a Grade II health officer. Determination of the need for full-time deputies would be governed by state-aid rules. Waiver of the qualifications for deputy would be allowed at the discretion of the council, based on a statement supplied by the appointing authority indicating the specific duties of the position and the provision made for required postgraduate instruction. A two-year limitation would be placed on any waiver granted, the appointee being expected to qualify within such period. It is not proposed to change the existing qualifications for Grade II health officers.



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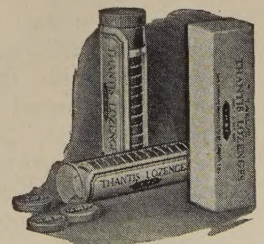
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Open Forum

Chemicals Added to Foods

T. SWANN HARDING
Falls Church, Va.

There seems to be no end to human rascality and credulity. People who want to make money selling other people processed foods and drugs, do not seem to care how many of their customers they kill, provided they make the money. It was only a few years ago that some bright young chemist conceived the idea of adding orthocresyl phosphate to some quite potable ginger-flavored alcohol. This made it similar to Jamaica ginger and in those "prohibition" days, such ginger was highly esteemed by many as a cocktail substitute. As a result of this commercial indiscretion, hundreds of innocent bibulous and convivial individuals were paralyzed from the hips down in consequence of drinking the concoction, which was scrupulously labeled in barrels as "liquid medicine."

A few years later (1937) another chemist *assumed* that diethylene glycol would be an ideal solvent for sulfanilamide. So it was, but it was also poison, as very rudimentary biological testing would have demonstrated, and it killed one hundred and seven people. Diethylene glycol was also being used in flavoring extracts as well as in this famous elixir sulfanilamide. Fortunately the extracts are not known to have killed anyone, and apparently the manufacturers didn't care too much since its use saved alcohol and glycerine and prevented the flavoring from "freezing out" of ice cream or "baking out" of cakes. That was sufficient from a profit-making standpoint to recommend the poison for the purpose. The Food and Drug Administration fought ably against such unscrupulous manufacturers and on June 7, 1946, W. B. White broke down and told other tales about things found in foods.

For the moment consider only the substances used to preserve, stabilize, or act as inhibitors when added to foods. All of the following can and have appeared in this role: Tocopherols; hydroxy-chromans, hydrocoumarans, and other compounds related to tocopherols (in combination with ascorbic acid); naphthols, quinones, and quinols (plus ascorbic acid and/or the compounds named under hydroxy-chromans, etc.); caffeic acid (alone or in combination with one or more of the following: ascorbic acid, tartaric acid, phosphoric acid, and the compounds named under hydroxy-chromans, etc.); hexuronic acids, as for example, galacturonic and glucuronic acids (plus one or more of the compounds mentioned under hydroxy-chromans, etc., and under naphthols, etc.); phosphoric acid; phosphorous acid or acid salts; phosphoric acid-fatty acid esters of glycerol; phosphoric acid-fatty acid esters of glycol, polyglycols, and polyglycerols; reaction product of monoglycerides, phosphoric acid; and beta amino ethanol; phosphoric acid esters of polyhydric phenols; organic acids, including oxalic,

tartaric, maleic, malonic, malic, citric, pyruvic, succinic, fumaric, aconitic, etc.; ascorbic acid; fatty acid monoesters of *l*-ascorbic and *d*-isoascorbic acids; reaction product of castor oil with citric, tartaric, or other organic acid, or maleic anhydride; nordihydroguaiaretic acid; gallic acid, propyl gallate, and other gallates; condensation product of a polyphenol (as pyrogallol) with ketones, aldehydes, fatty acids, etc.; phenol derivatives, such as methyl vanillate, methyl syringate, etc.; phenolic compounds, as for example, vanillyl alcohol and coniferyl alcohol; phenolic compounds, as for example, catechol monododecyl ether; high-molecular weight ortho- and para-polyhydroxyl benzene compounds, as dodecyl catechol and dodecyl hydroquinone; an ethyl ester or another organic ester of tyrosine; sugar amines or amine salts, as glucamine, methyl glucamine, lauryl glucamine, etc. and hydroxamic acids.

There is no way of judging what elements you may encounter in your food. No wonder we require constant vigilance by the Food and Drug Administration's staff and by the state and local food, drug and health officials. In another instance—the magic chemical thiourea, which in traces will prevent the cut surfaces of fruit from darkening on exposure to air, will also inhibit corrosion and prevent loss of color in canned fruits and enormously decrease storage decay of citrus fruits. It was, however, said to penetrate the fruit deeply. How about using it inside fruits? Animal experiments had shown moderately harmful effects on rats where the chemical was used in relatively large amounts. Later experiments with treated oranges which showed 45 p.p.m. of thiourea in their juice, killed two of six adult rats in one feeding. On postmortem the dead rats were found to show extensive pleural effusions, true in lesser degree in the survivors. The results were in a sense unforeseen but not wholly unforeseeable.

In 1936 an individual turned up who complained that she and two other members of her family had eaten a handful of raisins and experienced violent headaches as a result. The headaches recurred and a doctor called into consultation found tachycardia. The result was that the raisins, on analysis, were found to contain 3,000 p.p.m. of hydrocyanic acid! An unopened package of the same brand was found to contain almost as much. The poison was there as a result of fumigating a product not ever known to show any considerable degree of retention. Whether anybody died from eating these raisins is not known. They may have. The deaths may have been attributed to something else, but the mere fact that hydrocyanic acid could remain in the raisins in such strength is a solemn thought.

The following words from a paper by the late Dr. Calvery, of the Food and Drug Administration, increase in interest daily: "As our population becomes more urban and our consumption of synthetic materials grows each year, the problem of acute and chronic toxicity becomes increasingly important to the public health. Such concentration of population

Toward a Better World

WILD LIFE CONSERVATION, almost unheralded, is being carried out on a grand scale, by the Fish and Wild Life Service of the Department of the Interior. Incidentally, their many refuges for restoring the waterfowl population are supported entirely by hunters, through purchase of "Duck Stamps." Their entire program—preserving wild life otherwise doomed to extinction—means inestimable happiness for future generations.

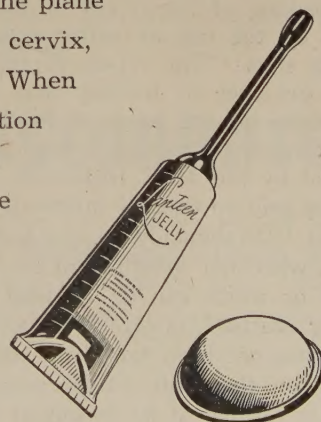


Progress is also taking place sociologically... promotion of Lanteen products by Lanteen Medical Laboratories. These products are leaders in their field, and produced under rigid scientific standards.

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necessitates handling, transportation, and storage of foodstuffs. This in turn has resulted in the use of preservatives and stabilizers, and in the danger of contamination of foods in manufacturing, refining, and packaging. The exposure of the majority of the population to ever-increasing quantities of synthetic products in foods, drugs, cosmetics, household items, clothing, etc., extends the possibility of chemical sensitizations and poisoning. Urban areas require central water supplies which must be so chosen and maintained that they will not contain harmful impurities. The exposure of hundreds of thousands of industrial workers to toxic substances is another important factor in the public health. * * * There is the danger that the industrial hazards of rapidly developing new processes and longer hours of exposure have not yet been fully appreciated. In addition, the spraying of fruits and vegetables for insect control has given rise to the spray residue problem. These are some of the problems that face public health officials in a modern civilization."

The effects of a potential poison should be studied on every organ and function of the body. Acute toxicity should be studied on at least three suitable animal species. Chronic studies should also be carried on upon as many species, plowing the furrow out to the very end, for some toxic results come late and only after prolonged use. As Calvery and his associate Woodard said, in *Industrial Medicine*, January 1943: "Medical research is constantly striving to improve the health of this portion of the population and it would therefore seem that it is the duty of the toxicologist and the public official to take cognizance of these chronic poisons whose actions are specific for certain organs and tissues, and may be potentiated by such pathological conditions. In studying a toxic agent, one is likely to be considering only his own particular problems. However, he should not forget that the public is exposed to other poisons every day. There is the possibility that some of these poisons may have an additive or summative effect. Therefore, it becomes necessary to consider all possible sources of poisoning at the same time, in order to come to a judicious conclusion."

Speaking of the report of the Remsen Board in 1908 on the use of sulfur dioxide in foods, Dr. White says: "The report of the Board showed so little evidence of toxicity that sulfur dioxide was permitted in such foods as dried fruits where it did not 'conceal damage or inferiority'; but it was prohibited by the Meat Inspection Regulations, where it was held to conceal inferiority. Under the new Act of 1938 the addition of a poisonous substance to food, when not 'required in the production of such food' or which can be 'avoided by good manufacturing practice', is *ipso facto* an adulteration. The issue has not been raised on sulfur dioxide as yet, either on the score of its necessity in any given case, or on that of its poisonous or deleterious character *per se*. The present policy is thus to discour-

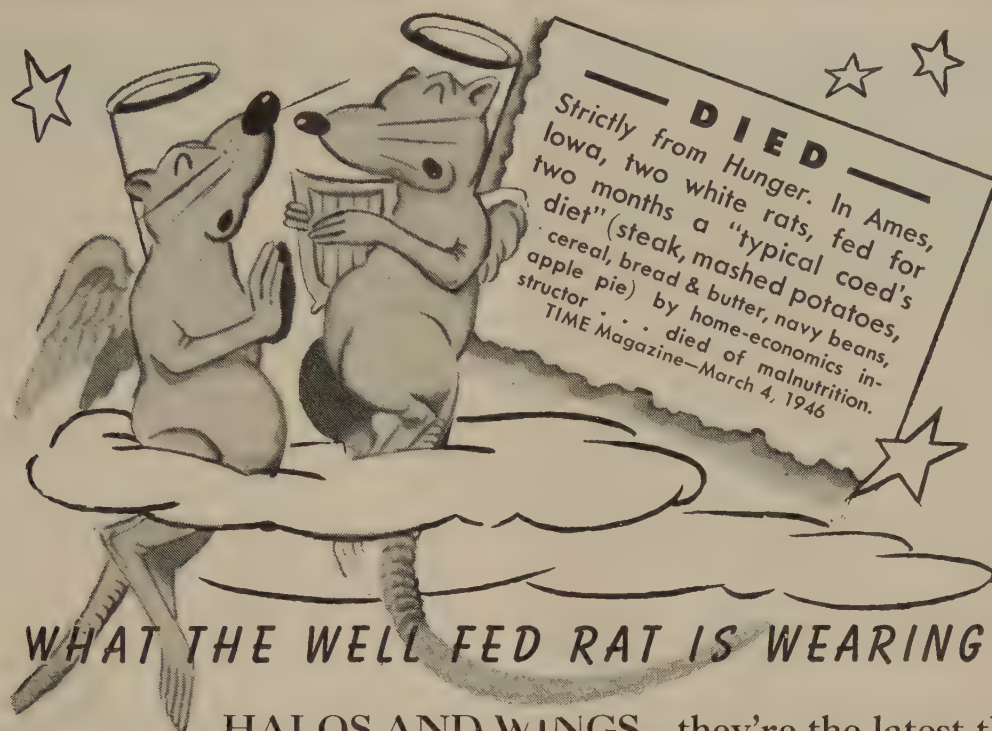
age its use (as with all preservatives), keep its concentration as low as possible, compel its label declaration in unequivocal terms, and to invoke the prohibitions of the Act against making the food 'appear better or of greater value than it is', and against reducing 'the quality or strength' of the food, whenever the situation holds out reasonable promise of success in a court contest.

"It has been found that sulfur dioxide in concentration of some 1,000 p.p.m. is very destructive to thiamin and this may prove to be the next battleground in the long 'sulfur dioxide war' which has raged these forty years. Perhaps the proposed use of this magic gas in the manufacture of potato chips may some day offer the chance to show not only serious impairment of quality, but also the possibility of nutritional damage. The dried fruits are of course too poor in thiamin to raise this issue, and further it seems established that sulfur dioxide actually tends to prevent loss of ascorbic acid."

Before the consumer obtains them, processed foods meet with chemicals in many and varied ways. Preservatives may be added. Foods may be dyed, or they may be bleached. Drying agents like calcium or magnesium carbonate, tricalcium phosphate, starch, or a silica gel may be added. Inert gases like carbon dioxide or nitrogen may be used to displace air in packing and promote stability of the product. The whipping of anemic cream may be stepped up with nitrous oxide, and oxygen from the decomposition of hydrogen peroxide may be used to leaven cakes. Your salt may contain iodine, your bread, your olive oil, or your near-orange drink sodium bromate. Fluorine may appear in your water supplies to harden your teeth and cheat the dentist. Copper and zinc may be added to combine with chlorophyll in pickles, okra, etc., to impart a stable green color. Aluminum salts have been proposed to keep canned crab meat from turning black and zinc or aluminum dust to remove contaminating lead from maple syrup. Colloidal silver, dispersed by the electric arc, may be used to sterilize drinking water or wine, and zinc oxide may be added to can enamels to prevent sulfur black formation in canned corn. The fumigants—hydrocyanic acid, methyl bromide, carbon disulfide, ethylene oxide, and carbon tetrachloride, play their part, not to mention a recently used mixture of acrylonitrile and carbon tetrachloride.

Foods must then run the gauntlet of Bordeaux mixture, arsenic lead, fluorine, compounds of antimony, mercury, sulfur, and selenium as insecticides or fungicides, not to mention the organics: the nicotine derivatives, DDT, various quinones, dithiocarbamic acid derivatives, benzene hexachloride, and so on. Chemicals may then be added to change the pH, and others to emulsify the food product. Other future horrors already suggested or patented have names too long to reproduce in a respectable journal.

Amid this array you may begin to wonder whether you ever eat plain food. It looks as if you merely imbibe chemicals. With its sheet anchor, a decision of the Supreme Court, the Food and Drug



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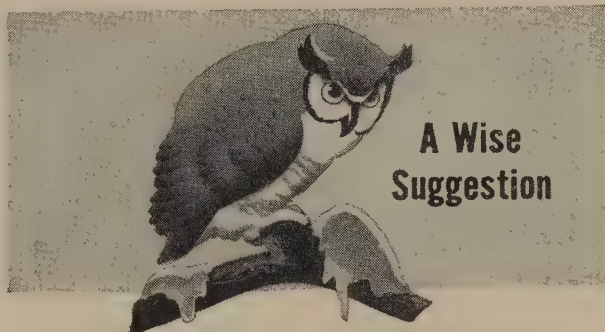
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Administration does what it can to protect health and prevent the addition of deleterious agents to food. The sheet anchor reads thus: "It is not required that the article of food containing added poisonous or other added deleterious ingredients must affect the public health, and it is not incumbent on the government in order to make out a case to establish that fact. * * * The word 'may' is here used in its ordinary and usual signification, there being nothing to show the intention of Congress to affix to it any other meaning. In thus describing the offense Congress doubtless took into consideration that foods may be used in many ways. Food may be consumed by the strong and the weak, the old and the young, the well and the sick; and it is intended that if any food, because of any added poisonous or other deleterious ingredient, may possibly injure the health of any of these, it shall come within the ban of the statute." * * *

Granite Gables

County Health Departments

Despite concerted drives to influence counties to accept their responsibilities in the field of health conservation, only six have elected to organize county health departments, according to *Health News*, October 14, 1946.

Addressing the Annual Conference of Health Officers and Public Health Nurses at Saratoga Springs recently, Dr. VanVolkenburgh, assistant commissioner for local health administration, New York State Department of Health, enumerated as possible deterrents the former legal requirement that local health districts be abolished in towns and villages of less than three thousand population when a county health department was organized; unwillingness of county supervisors representing a dominant city to support such a measure even though it did not include the city and did not affect its taxes; opposition from supervisors representing areas outside of such large cities who were opposed to an organization which included the city; and the feeling on the part of some counties that state aid provisions were nig-gardly. He said that these handicaps had been removed under the provisions of the amended law, effective January 1, 1947.

Fear of state domination is said to have been another deterrent to county health department formation. In this connection, Dr. VanVolkenburgh emphasized that failure on the part of counties to provide adequate health conservation programs had forced the state to take over many of the activities which should be provided by an adequate county health department service. Because of this fact, it was necessary over the years for the department to augment its field staff and to increase the number of state health districts to twenty, each of which comprises not more than two to four counties. In his opinion, this represents state control of local health services and the alternative to such state domination is the establishment of a county health department.

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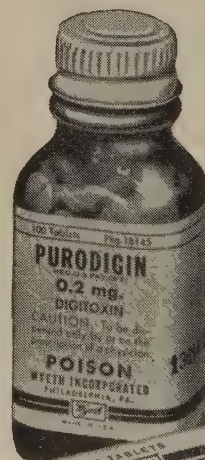
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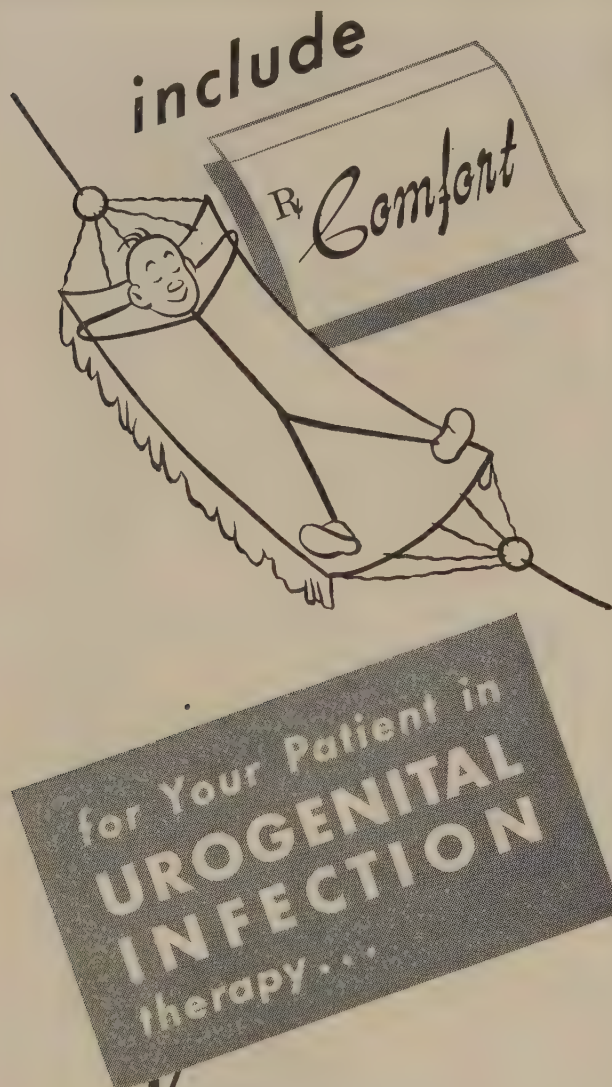
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National Committee for Mental Hygiene

Dr. George S. Stevenson, medical director of the National Committee for Mental Hygiene, stated in his report at the annual meeting of the committee, held October 1946 at the Hotel Pennsylvania, New York, that veterans organizations are depriving the service disabled veterans of much needed help by supporting the legal provision, that men with non-service-connected disabilities must be served by the Veterans Administration.

Explaining his statement about the harm being done by veterans organizations, he said, "The Veterans Administration serves two classes of veterans—those whose disabilities are service-connected, a clear federal responsibility, and those which are not". Non service-connected men are eligible only for in-patient service and so require the hospital staffs which could be served to meet the out-patient needs of the service-connected. Again and again both classes of veterans are forced into in-patient service to get any help at all. For certain types of patients, especially those with psychoneurosis, hospitalization has many disadvantages. It engenders dependency. For many medical cases, such as gastrointestinal disturbances, out-patient treatment is to be preferred. Under hospitalization the problem becomes psychiatric. The result of the present set-up is that only large centers have Veterans Administration out-patient service."

Dr. Stevenson revealed that the Mental Hygiene Committee's division on community clinics, formerly concerned only with child guidance clinics, will broaden its scope to assist rural and small urban communities in the organization of all-purpose clinics, especially needed now that the demands for services to veterans are so pressing.

Vocational rehabilitation is a second element in achieving a new public psychiatry, Dr. Stevenson pointed out. "Rehabilitation for the mentally handicapped occupied the National Committee during the war. Now we are organizing a peace time rehabilitation program designed to carry out actual experiments in the rehabilitation of patients discharged from mental hospitals and clinics, and offer consultation to states in setting up such services."

The National Committee for Mental Hygiene with the American Psychiatric Association, jointly conducted a psychiatric personnel placement service for psychiatrists returning from the armed forces, he reported. "The committee had hopes that this might help solve the critical shortage of our hospitals, but of some nine hundred returning psychiatrists seen through this service, only sixty indicated interest in appointments in state mental hospitals. The better we train psychiatrists, the less willing they will be to work where they cannot practice good psychiatry."

So much has been published and said during the past year about the shortcomings of mental hygiene services throughout the country that one may think the field is in a terrible slump. Actually the outlook is brighter than ever before for we are facing our deficiencies.

Theme in PSORIASIS

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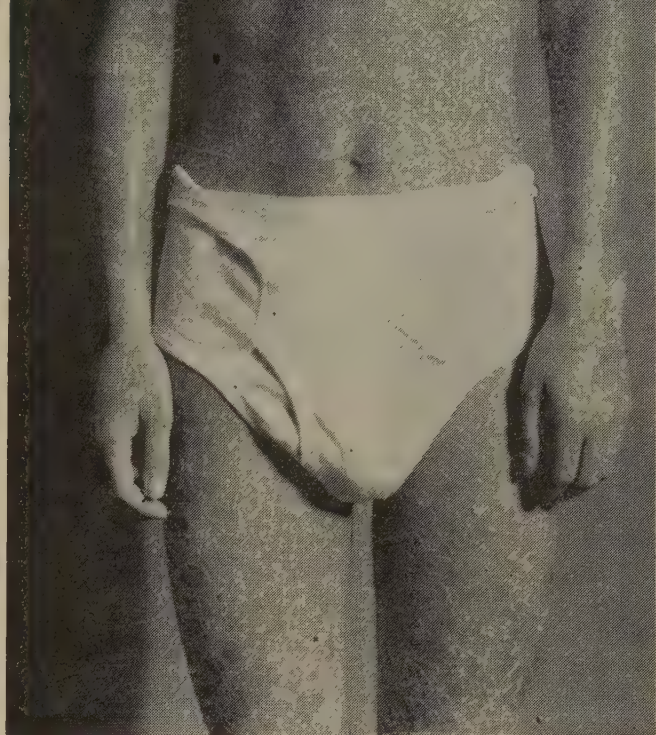


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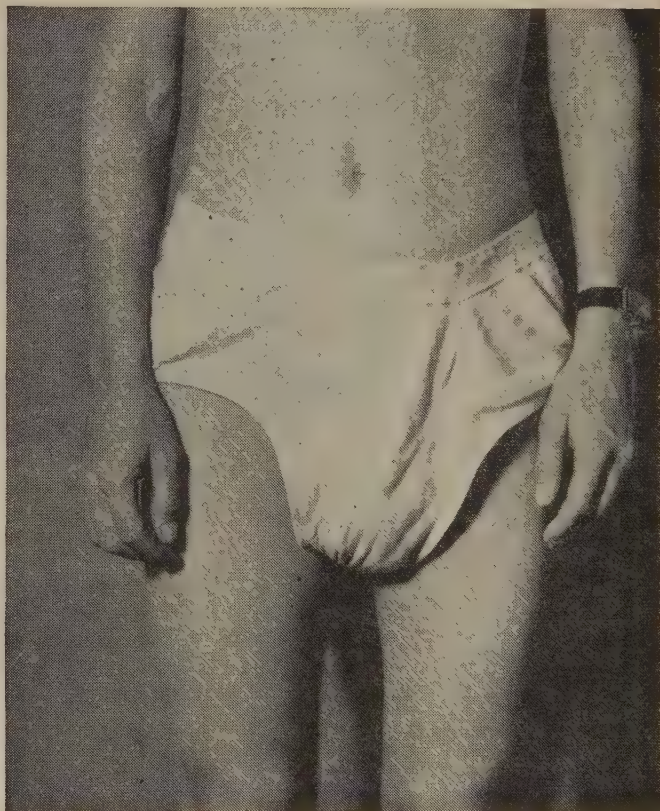
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First National Conference on Local Health Units

The greatest single obstacle to the establishment of local public health units throughout the United States is a shortage of personnel. This was the consensus of opinion of more than a hundred public health administrators representing virtually every state in the Union, who gathered at the University of Michigan School of Public Health, Ann Arbor, for the national conference on local health units—a first step toward interstate cooperation in the development of local health services.

The conference was proposed by the subcommittee on local health units of the American Public Health Association Committee on Administrative Practice. It was also sponsored by the Association of State and Territorial Health Officers, the program committee including members of both organizations and also of the School of Public Health. Dr. Haven Emerson, chairman of the subcommittee, characterized the conference as unique in that "the medical health officers holding the highest responsible positions in the state governments were invited to assemble under wholly academic auspices for an intellectual, objective, impersonal discussion of a major problem of administration within the framework of local civil government."

During the five-day meeting, the state health officers of the several states and their directors of

local health services, explored all aspects of the proposal to make immediate progress toward the provision of at least basic local health services for every area and population group within the continental United States. New York State was represented by Dr. Edward S. Godfrey, Jr., state commissioner of health, who was one of the discussion leaders, and Dr. V. A. VanVolkenburgh, assistant commissioner for local health administration, who spoke on "Local health district development in New York State."

One of the major conclusions reached by the conference was that every state should have, or should immediately develop, a plan for the provision of full-time local health services for all of its people. This view was expressed in the form of a resolution following discussion of a paper "Scope and facilities for local health units" presented by Dr. Harry S. Mustard, dean of the School of Public Health, Columbia University. The resolution indicated further that such a plan should include programs for: 1, enabling legislation; 2, a definite schedule or specific criteria for dealing financially with local health jurisdictions to provide fulltime health service; 3, the recruitment and training of personnel; and 4, the development of a statewide program of health education to be carried on at both state and local levels, but only in accordance with the available facilities for providing services which may be demanded as a result of such a program.

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Biological Research Division

The National Institute of Health and the Monsanto Chemical Company have recently announced the entrance of the U. S. Public Health Service into the nuclear research program at Clinton Laboratories, operated by the Monsanto Chemical Company, and the organization of a new Biological Research Division as a cooperative undertaking with the National Institute of Health. The program will include extensive research into the effect of nuclear radiation upon living cells and to determine the maximum safe exposure for workers in this field.

Dr. Hollaender, principal biophysicist of the National Institute of Health, will be in charge of the administration of the Biology Division, and will supervise, coordinate and outline in broad terms the research work of the division and its constituent sections. The work of the division will be divided into the following units: biochemistry, cytogenetics, general physiology, experimental radiology, and a section of cooperative studies.

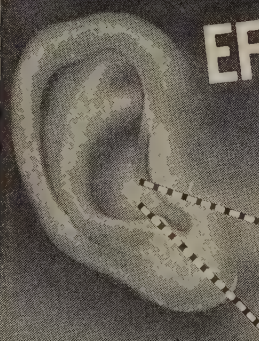
Dr. Hollaender will be associated with Dr. Eugene P. Wigner, research director of the laboratories. Dr. Hollaender, who made a survey for the Rockefeller Foundation twelve years ago on the biological effects of electro-magnetic radiation, will use the radiations available at the Clinton Laboratories as a result of nuclear disintegrations within the pile. These include radiations emitted by substances irradiated within the pile, and radiations emitted by the new sources of penetrating irradiations,

such as the betatron. Although work on animals to determine the limits of tolerance for men working with nuclear energy will be continued in the new biological division, the main effort will be shifted to the more basic aspects of radiation research. The need is urgent for answers to such questions as that of the lowest dosage of radiation which will interfere with the normal function of a cell, and associated problems. The practical use of atomic energy in industry is dependent upon the solution of problems of maximum safe exposure for workers.

New Organization to Combat Multiple Sclerosis

A new organization has been formed to fight multiple sclerosis, a chronic disease of the nervous system, which cripples thousands yearly, but about which little is known.

This recently formed group, called the Association for Advancement of Research on Multiple Sclerosis, was initiated by multiple sclerosis patients in cooperation with some of the country's leading neurologists. Its purposes are to: Coordinate research on multiple sclerosis in this country and abroad, gather statistics on its prevalence and geographical distribution; act as a clearing house for information on this disease; educate the public on the problem of multiple sclerosis; and collect funds to stimulate and support research on multiple sclerosis and allied diseases.



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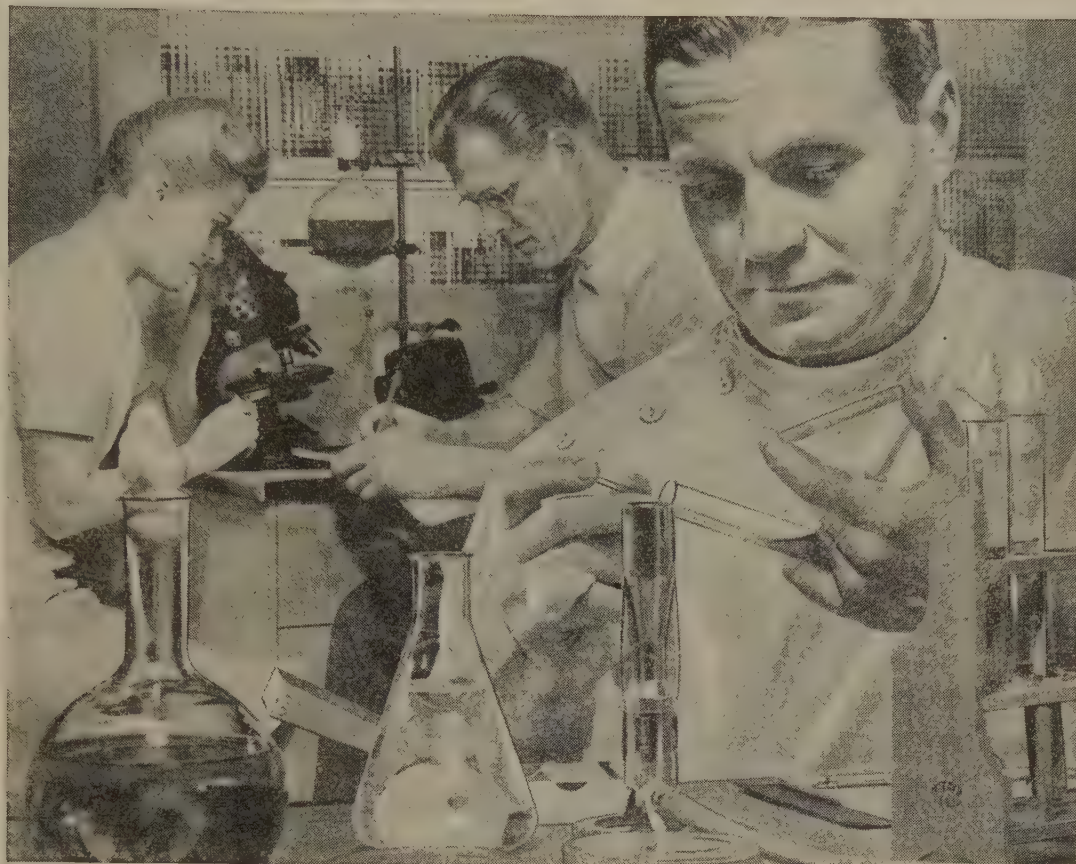
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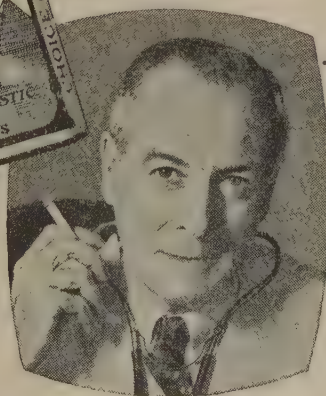
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Tuberculosis Research

Surgeon General Thomas Parran recently announced that, guided by the recommendations of a conference of outstanding leaders in tuberculosis from the United States, China, and Denmark, the United States Public Health Service, Federal Security Agency, will extend its tuberculosis research program to include studies on the effectiveness of BCG vaccine in preventing this disease.

At the conference, Doctor Herman E. Hilleboe, chief of the Tuberculosis Control Division of the Public Health Service, reviewed the past experience with BCG, a bacillus named for Calmette and Guérin, the French scientists who discovered it. Doctor Hilleboe pointed out that the vaccine has been extensively used in Europe and South America in artificial immunization against tuberculosis, and that research on this subject has been undertaken in the United States by competent investigators. From studies presented at the conference, it appears that BCG vaccination confers increased resistance for the limited period covered in these studies but it is not one hundred percent effective. There have been no proven cases of progressive disease resulting from BCG vaccination, and it can be used without causing severe local reactions.

Although the conference emphasized that BCG

vaccine should not yet be made commercially available in the United States, it strongly advocated extensive research to determine the efficiency of the vaccination. It was also recommended that methods should be developed to standardize the techniques of the preparation of a potent and stable vaccine for use in the United States, and if possible throughout the world. Plans proposed for carrying on this research include: establishment by the Tuberculosis Control Division of a single laboratory to produce BCG vaccine for the entire country for use in research programs; extensive investigations to be carried on cooperatively by recognized research groups throughout the country during the coming years, especially in population groups highly exposed to tuberculosis; controlled study by the Tuberculosis Control Division, in a community containing 100,000 or more people, to determine immediate and long-range results; and development of methods to standardize techniques of preparation of a potent and stable vaccine.

The studies of Doctor Aronson and his co-workers, which were presented at the conference, were made possible by a grant from the Medical Research Committee of the National Tuberculosis Association. This was one of many cooperative research projects in tuberculosis, carried on by the United States Public Health Service and the National Tuberculosis Association.

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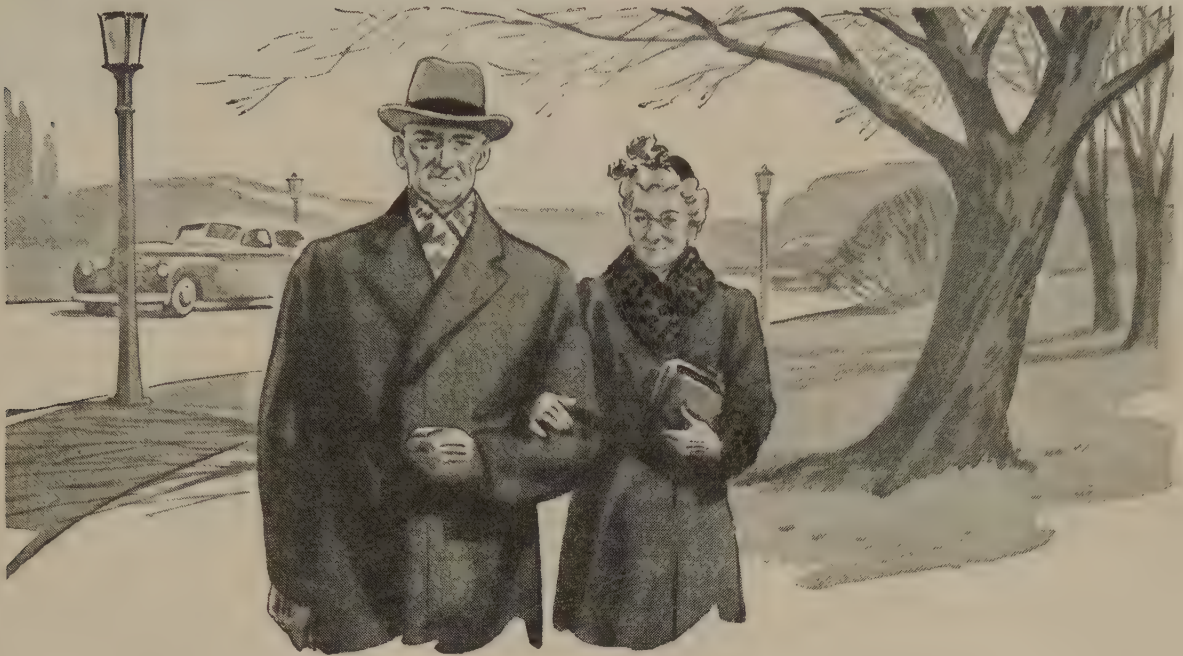
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Synthetic Penicillin

The synthesis of penicillin as the climax of one of the greatest international cooperative efforts of its kind was announced in *Science*, according to *The New York Times*. The synthesis is regarded as one of the greatest achievements in biochemistry, duplicating in the laboratory what previously could be produced only by a living mold, *penicillium notatum*.

It was made possible by the unprecedented mobilization of scientific talent both here and in England during the war and comes as the culmination of five years of concentrated effort by thirty-eight teams of outstanding scientists; twenty-one in the United States and seventeen in England. The final steps in the synthesis are the outcome of the intensive researches by the team at the Cornell University Medical College of the New York Hospital-Cornell Medical Center. Most of the preliminary work was performed by American and British chemists working under the joint auspices of the committee on medical research, Office of Scientific Research and Development, Washington, and the Medical Research Council, London.

The isolation in crystalline form of the active synthetic product and "the unequivocal proof of its identity with natural penicillin," of the type known as penicillin G, or benzylpenicillin, were achieved at the Cornell biochemical laboratories after the termination of the OSRD contracts, through the relentless pursuit of clues that had been discarded by most of the other teams working in the field. The climactic experiments were carried out by Professor Vincent du Vigneaud, head of the Cornell Department of Biochemistry, and Drs. Frederick H. Carpenter, Robert W. Holley, Arthur H. Livermore and Julian R. Rachele.

There are several types of penicillin manufactured by the mold, known as G-, K-, F-, and X-penicillin. Several others still remain to be identified. The type so far synthesized is the G-type, but the method lends itself to the production of the other types, this depending on a modification in one of the two starting compounds out of which the final synthesis is made. The present methods involved in the synthesis, Professor du Vigneaud pointed out, yield the substance in too small amounts and are too slow to compete with the production of the living mold. However, he added, it is very likely that improved methods will eventually be found, as is generally the case with all newly synthesized substances. The importance of the synthesis, however, does not lie in the production of the same types of penicillins as those produced by the mold, but in the opening of new vistas for the artificial creation of new types of penicillins, or entirely different substances for the conquest of a host of bacterial or virus diseases against which the mold-produced penicillins are not effective. These diseases include tuberculosis, leprosy, malaria, the common cold, influenza and infantile paralysis.

The synthetic penicillin was prepared from two substances, both of which were originally isolated as degradation products of natural penicillin. Both can be prepared from certain amino acids, the building blocks of proteins, but neither had previously been found in living matter. One of these is named dextrophenicillamine, a derivative of cysteine, a substance present in the living body. The other belongs to a group of synthetic chemicals known as oxazolones, which had previously played a rôle in the synthesis in the laboratory of many compounds. However, the particular oxazolones obtained as degradation products of natural penicillins and used among the starting materials in its synthesis, had not been synthesized until the investigations on penicillin were begun in this country and in England.

One of the findings regarded as highly significant is the fact that the dextrophenicillamine is in the so-called "unnatural" form. The amino acids, the building-blocks out of which all the tissues of the living body are composed, have the faculty of rotating a beam of polarized light either to the right or to the left, thus being known as dextro- or levo-rotary. The amino acids found in the body are all levo-rotary and are thus known as the "natural" amino acids, whereas the ones that rotate the beam to the right are known as the "unnatural" ones, since the animal body, as far as is known, is unable to utilize them as such.

The dextrophenicillamine, one of the two basic building-blocks of the synthetic penicillin, is a derivative of dextrocysteine, the type not found in the living body. This opens the possibility that many other antibiotic substances, as potent or even more potent than penicillin, may be built out of the other dextro-rotary amino acids, which, though not present in the living body can be synthesized in limitless amounts. Following this important clue, the Cornell report says work has already begun on the preparation of new types of antibiotic chemicals by the substitution of several other related substances for the dextrophenicillamine, among these being the dextro-form of cysteine. These new substances, the report notes, have yielded antibiotic activity. "This indicates," the report added, "the synthesis of analogues of penicillin differing from the known varieties. All the penicillin so far produced by the mold have contained dextrophenicillamine; the above observations open the way to the synthesis, from related substances, of a series of entirely new and different penicillins which might possess desirable therapeutic properties."

One important mystery, however, still remains to be solved. For while it has been definitely established that the chemical reaction between the two starting substances results in the synthesis of penicillin, the intermediate steps by which the reaction takes place are not yet known. Radioactive "tracer" substances produced in the atomic bomb plants are expected to lead to the final solution of one of nature's greatest secrets.

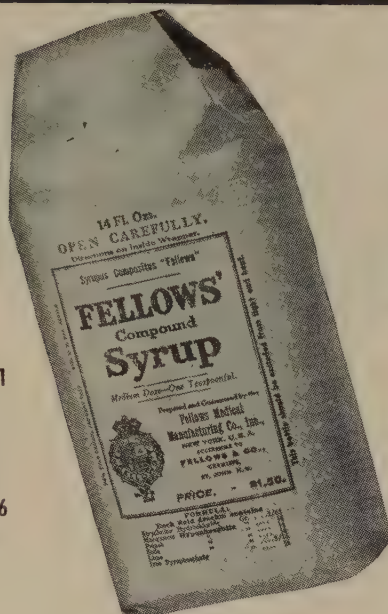
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WHOLE No. 2767

THERAPY IN ACUTE CORONARY ARTERY DISEASE

GEORGE SCHWARTZ, M.D.

New York, N. Y.

The purpose of this paper, in view of the abundance of excellent thoughts on this subject within all medical publications, is to correlate varied concepts, so as to permit its utilization as a guide for procedure in a therapeutic approach to acute coronary disease. This paper was initiated at the request of the clinical society of the Parkchester General Hospital, where it is to be presented this fall. The conclusions herein presented are a culmination of the efforts of the writer in this field, of some original endeavors and of the consensus of opinions of various authors.

The coronary facies, the all too-typical anginal seizure and syndrome, shock, cyanosis, dyspnea, subjective fear of impending disaster, etc., all in conjunction or as isolated phenomena in greater or lesser relative degree, are perhaps not too readily appreciated. It may be, perhaps, that a definite temerity exists within all of us to stigmatize an individual as a possible 'acute coronary' upon the recognition of an isolated sign or symptom, and thus subject the individual and his family to the mental, physical and financial ordeal of a differential diagnosis. It is sufficient to say that many physicians have become somewhat chagrined on learning that that which was considered a cholelithiasis, appendicitis, indigestion, etc., in reality was an acute episode involving the coronary artery tree; and the reversal of the above statement is found to be equally as common.

It has been the writer's pleasant experience that in the greater majority of the acute coronary episodes, both the patient and the family, when confronted with the facts as medical men understand them, when discussed in an intelligent unemotional fashion, when reasonable answers were offered to all their questions when complications, longevity, therapeutic and laboratory investigations were understood, whole hearted support was found in the majority of the cases and a full and complete approach to the problem was readily urged by all concerned. Unquestionably, any form of discussion of the problem, follows only after immediate and fundamental therapy has been employed, and when a relief or partial relief of the manifesting signs and symptoms is accomplished, a great measure of confidence has been instilled upon both the patient and

his family. It is at this time that perhaps the greatest value of the physician becomes apparent. His attitude, demeanor, optimism, his carefully selected phraseology in the discussion of the disease, all these and other attributes together can 'sell', the proper therapeutic approach to all concerned. He can dispell unnecessary alarm and concern, and gain acquiescence in even alarming details of management as oxygen tents, phlebotomy, nursing service, etc., for these and other details of management will always cause a certain amount of alarm among the laity.

Early in the therapeutic approach, the family and the patient should have instilled upon them, the physician's own spirit and wave of optimism. This can be accomplished by the discussion of the time element in bed rest and the time element concerned with convalescence. In this way, another vexing situation is 'eased' into the consciousness of the family and patient, and will be more readily confronted and solved. Invariably, unless the ground work has been definitely established, the physician is burdened with demands for explanations as to the why and wherefore's of the prolonged confinement to bed, and what is more beyond the ken of the average person, the prolonged period of convalescence. Similarly, the advantages and purposes of serial electrocardiography and other laboratory procedures are stressed, and thus a sincere desire for further evidence of progress as obtained from laboratory evidences gains ready acquiescence from the family.

Therapy

The immediate therapeutic approach now confronts us and is concerned with the administration of necessary and essential drugs and oxygen. Laboratory procedures, transportation of the patient, drugs concerned with varied complications, the complications themselves, all come later; although the presence of a specific complication demands immediate recognition and therapy, and will complicate the approach in any case.

The three immediate drugs to be utilized are 1. morphine, 2. atropine, and 3. aminophylline or papaverine. Oxygen is likewise a categorical immediate must, especially so if its need is most ap-

parent. The relief of pain, the minimizing of apprehension and shock demands efficacious dosages of opiates, and morphine sulphate is to be administered intramuscularly, stat, $\frac{1}{2}$ grain preferably, and repeated if deemed necessary even within fifteen minutes or at longer intervals, although perhaps in lesser doses.

Vasodilation is readily accomplished and forms an essential and integral part of the therapeutic approach. Vasodilation is necessary since vasoconstriction occurs among the arteries supplying the uninvolved portions of the heart muscle, due to a reflex arising from the involved occluded artery. As a result, there is a decreased supply of blood and oxygen to the remaining portions of the uninvolved arteries and muscles, thus the utilization of atropine sulphate is deemed necessary and advisable. Sufficient experimentation and clinical observation exist to warrant the drugs' use, since the clinical course is appreciably aided and the mortality rate is decreased. Sufficiently large doses should be administered and the writer frequently employs $\frac{1}{50}$ of a grain intramuscularly, repeated three or four times daily until oral administrations become the method of choice. Usually $\frac{1}{75}$ or $\frac{1}{100}$ of a grain, repeated three or four times, suffices.

Aminophylline grains $7\frac{1}{2}$, or papaverine grains $1\frac{1}{2}$, should be administered immediately in a similar fashion, by either the intramuscular or intravenous route, the latter being preferable; keeping in mind that it should be administered slowly, carefully and judiciously. Either of these will further increase the flow of blood through the coronary vessels; thus, because of an increased oxygen availability, it will further decrease the pain. It is to be stressed that either drug can be employed, but not in conjunction, because of the possibility of an adverse lessened blood tension. These drugs likewise should be administered three or four times a day until such time as the oral method is deemed advisable.

Oxygen possesses its apparant need in desperate situations where deep cyanosis and a severe grade of dyspnea exists; likewise in cases of severe pain. However, in all cases a certain degree of oxygen desaturation exists and its utilization, if only in the early days of the coronary occlusion, apparantly is of distinct aid not only to the areas in which a reflex vasoconstriction has occurred, but also to the infarcted area.

A brief summary in the immediate approach to the therapy in an acute coronary occlusion, is the immediate and repeated administration of morphine, atropine, aminophylline or papaverine, and oxygen.

Following the successful initial stages, laboratory procedures are brought into the picture. Blood tension levels, blood counts, temperature levels, sedimentation rates and electrocardiography, etc., are accomplished, and repeated as often as is deemed necessary. Too great a stress cannot be placed on serial electrocardiography and repeated sedimentation rates, etc., in the determination, of not only the progress of the reparative processes, but also in the determination of when the heart has attained its condition of *status quo*.

There follows then the problem of whether the patient should be hospitalized or whether the patient should remain at home, the problems of oral medication, diet, bowel hygiene, recognition and treatment of possible complications, etc. The problems associated with hospitalization of the patient or permitting him to remain at home, are many and vexing. Here the economic factor, the emotional stability of both patient and family, the gregarious nature of the patient and his friends, the physical environment of the home and finally the cooperation of all concerned, are all involved. The family physician is perhaps the best authority, and his opinion should serve as the guide to the specialist and to the family; for he perhaps can render the most unbiased opinion. If transportation is necessary, it should be accomplished by ambulance, a modern ambulance possessing all mechanical devices for a safe and easy transportation. In addition, the ambulance should carry oxygen which should be administered throughout the trip. Hospitalization appears to be the best answer to the problem and solves many an objectionable situation, yet the writer, as well as others, has managed many cases successfully in the home and nothing appears to have been left wanting.

Diet

A strict adherence within the first few weeks to an eight hundred calory diet is essential. This diet should be free of gas forming foods and should consist of only easily digestible foods. In this regard, it should be carefully determined which foods cause excessive gas for the particular patient in question, and the diet likewise, should consist of foods desired by the patient, unless they appear to be otherwise contraindicated. Peculiarly enough, the last few cases of the author were unable to digest milk in any form, or if they could manage this food element, they became markedly distressed and distended. Fluids, but not effervescent ones, should be given moderately and adequately. The eight hundred calory diet is, after several weeks, gradually increased until the patient receives an adequate caloric intake to maintain his optimum body weight. In a great number of instances both the patient and family place too much stress upon an apparant loss of weight, and the dietary regime of an eight hundred calory intake, causes many a quissical expression. Occasionally real hunger is experienced by the patient and it is then advisable to suggest an extra baked potato with some butter, or a moderate portion of jello, custard, etc., between meals.

Bowel Hygiene

Confinement in bed and bowel hygiene are both stressed for the six week period of restriction to bed. The bowel hygiene must be attended to by the use of the bed pan. It must further be stressed, that despite the proximity of lavatory facilities, the safest procedure is the utilization of the bed pan and urinal throughout the six week confinement to bed. The physical and mental exertion associated with the manipulation of the body to the lavatory is dangerous; which is borne out by the two following

cases: In a large city hospital, two 'coronaries', one of three weeks' and one of five weeks' duration, went to the lavatory in the middle of the night when the nursing personnel was unobservant, and both on their return, not even reaching their beds, collapsed and made an immediate exitus. Two problems arise at this point, and these are, the optimum period for bed confinement and the adequacy of bowel hygiene in the first three days of the acute illness. There has been an apparent trend toward shorter periods of bed confinement. Several doctors and patients alike, have mentioned the practices of some physicians who actually limit bed confinement to three and four weeks, irregardless of graphic changes in the electrocardiogram, etc. It is all too true that some electrocardiographic patterns on serial electrocardiography reach a stabilization point prior to the termination of the usual six week period of absolute bed rest, and similarly, this is all the more true in the other laboratory approaches. Yet the consensus of medical opinion is that there should be six weeks of absolute bed care and this if possible, in a real hospital bed. Exceptions, however, always occur in this instance as in other medical episodes, and the judgement of the physician in charge is to be respected. Yet the plea for more conservatism is earnestly and honestly expressed, and in convalescence, a period of equal duration is likewise the consensus of opinion of all who prefer a conservative approach in this disease. The period of convalescence is one in which a gradual return to former activities is advocated for feeding, clothing, body wants—not including sexual matters—shaving, etc. This statement does not include activities associated with the business or professional world. Aggravation, trials and all forms of tribulations should be divorced from the patient throughout the advocated twelve week period.

The second problem in this phase of the regime is that of adequate bowel movement and it should be emphasized that mild, moderate and strong cathartics of any type should be entirely withheld throughout the first three days of the acute illness. It is believed that any semiviolent intestinal action, stressing or straining to force a bowel evacuation is deleterious and acts adversely, which further embarrasses the effects of an acute closure. On the fourth day following the acute closure, a low enema of perhaps four to six ounces of soapy fluids may be instilled; likewise, at this time, mineral oil may be given either at night or in the morning. Occasionally it appears advisable to render a more active cathartic and an emulsion; or, mild saline and laxatives may be employed. The use of a rectal tube for the elimination of accumulated gas is always advisable. Thereafter, a daily evacuation of the bowels is desired, and if not accomplished naturally without stress or strain on the part of the patient, the utilization of mineral oils, mild cathartics and especially low, small quantity enemas are urged.

Oral medication replaces parenteral medication after the initial stage of some twenty-four or thirty-six hours, during which the patient has received little if anything by mouth. Again, the same principles apply, namely sedation and vasodilation. For

a few days, at any rate, the writer employs a powder containing opiates, atropine or atropine-like drugs, plus another powder containing xanthine preparations. These are administered three or four times within twenty-four hours. After a few days, the opiates are usually discontinued as is the atropine. Thereafter the xanthine preparations, together with one of the more rapid acting and eliminated barbiturates, are continued indefinitely in diminished dosages, even after the period of convalescence. During the first few days, this writer places his faith in $\frac{1}{4}$ to $\frac{1}{2}$ grain morphine sulphate, $7\frac{1}{2}$ grains theobromine, $1/100$ grain atropine sulphate three or four times daily, as the situation seems to warrant. After the first week, a capsule containing theobromine, grains $7\frac{1}{2}$, and phenobarbital, grains $\frac{1}{2}$, is given three or four times daily. Occasionally, a small amount of codeine sulphate and aminophylline is included. It may happen that one xanthine preparation will cause distress whereas another will not. Sometimes all xanthine derivatives will cause distress, and then papaverine should be utilized; in fact papaverine is the drug of choice with many physicians today. The addition of the codeine or the phenobarbital, insures adequate rest and quiet for the patient.

Complications

The problems associated with the more frequent complications now arise, and in order of frequency in my experience, shock is paramount in importance, followed by arrhythmias, congestive failure, embolism, and a further complication is the presence of metabolic disease entities. A conservative approach in combatting shock is necessary. No heroic measures should be attempted, for these will only embarrass a harassed coronary circulation all the more. Absolute bed rest, adequate warmth, the head maintained at the body level or slightly higher, the medication as previously suggested and the proper sedation are all that is required to combat the shock resulting from an acute closure of a coronary vessel. Absolutely contraindicated, are inhalent stimulants and parental administration of such drugs as adrenaline, digitalis, or kindred medications. Following the thought concept of drug therapy, digitalis is a drug, the utilization of which should be carefully avoided in acute coronary artery disease. The action of digitalis is both, one of constriction of the arterioles, and one of increasing the irritability of the heart muscle. Neither action is desirable and are actually contraindicated since, as described above, we are definitely seeking a vasodilation of the coronary arterial tree, and we are likewise attempting to diminish any possible irritability of the heart muscle; actually we are seeking sedation of the heart muscle. When heart failure complicates the picture, other methods aside from the use of digitalis may first be attempted, as will be described.

There are many who advocate the prophylactic use of quinidine in the prevention of premature contractions, ventricular tachycardias and ventricular fibrillation. Quinidine does decrease the irritability of the heart muscle and actually serves as a

sedative effect upon irritable foci, and because of that singular action, its utilization, to this writer, is important and is often used; especially so, if any single or a few ectopic complexes are noted on the electrocardiogram or if any premature beat is heard through the stethoscope. A possible disadvantage in the use of quinidine therapy as a prophylactic measure, is the fact that it similarly decreases other functions of the myocardium as well; however this, I believe, is offset by its advantages. When actually used in the presence of a ventricular tachycardia, etc., it should be noted that less fear exists today in regard to the doses, than at a previous time. The prophylactic dosage may be considered as approximately 9 to 15 grains daily; for actual therapy, 60 to 100 grains of quinidine may be administered daily until effectual and then decreased accordingly. In one case published by this writer in the *MEDICAL RECORD*, October 1, 1941, 506 grains of quinidine were administered within a five day period, 1181 grains within a thirty-one day period and the patient was discharged on a maintenance level of 15 grains daily in divided doses. In the onset of other types of arrhythmias, such as auricular fibrillation and flutter, the literature has been extensively reviewed by this writer and his co-workers in the *MEDICAL RECORD*, April 1, 1942. Two cases were published together with this review in advocacy of the utilization of quinidine therapy rather than digitalis therapy in auricular flutter, (particularly so when complicating acute coronary artery disease).

The congestive failure resulting from the arrhythmias, or the congestion resulting from the failing heart may be passively eliminated by restriction of fluid intake to 1000 cc. per day or actively eliminated by the use of mercurial diuretics. Much has been written concerning the oral, rectal and intravenous (or intramuscular) route for the administration of the mercurial diuretics and my preference is the intravenous or intramuscular method. Furthermore, much has been written concerning the use of oral medications as an adjunct in the therapy of the mercurial diuretics; yet the author has found these unnecessary from a therapeutic viewpoint and also objectionable to the patient, for it adds immeasurably to his psychic discomfort, in that he must swallow that much more additional medication. The trend is toward administering mercurial diuretics more frequently, despite some urinary findings which previously had been considered positive contraindications. The writer in one instance has treated a case of failure with acute coronary disease as the initiating episode, administering for some nine years, mercurial diuretics once or twice weekly despite urinary findings of albumin and casts.

In further combatting pulmonary congestion, hypertonic glucose solutions have been utilized, and perhaps in isolated instances should be utilized further, yet the increase in the blood volume of even 50 or 100 cc. once or twice daily, is an unnecessary procedure in the therapeutic approach, especially since the aforementioned method is most efficacious and readily manipulated.

The advent of heart block in the past has been

accompanied with some concern, yet within the past few years many more cases of heart block have been seen and these perhaps do better being untreated. Factually, many cases of heart block never interfere with the daily activities of the individual so afflicted! Heart block, occurring as a complication in the acute episode of a coronary occlusion, will 'yield to the initial therapy recommended for the coronary occlusion', as stated by Dr. N. G. Gilbert in *Modern Concept of Cardio-Vascular Disease*. Aside from its occurrence in acute coronary closure, heart block may be treated by the administration of barium chloride, yet even this approach might be questioned, because when occurring as a complication of acute coronary closure, barium chloride should never be utilized, for here again its administration would offset the general principles desired and stressed above, namely, that of vasodilation; for barium chloride serves to decrease the volume flow of blood through the coronary arterial tree.

The more adequate and thorough the early treatment, the smaller the resultant infarct due to the original coronary occlusion, the smaller the endocardial involvement, and in addition, the possibility of a formation of mural thrombi with its subsequent development of emboli is decreased. The size of the occluded vessel and its subsequent infarct, can not actually be controlled, but may be diminished in size and severity by the therapy suggested in the first instance. Actual embolization cannot, in the main, be actively treated by medication, yet its occurrence further causes reflex vasoconstriction and thus it appears all the more of greater import to administer vasodilators in the form of the xanthine derivatives, or papaverine mentioned previously.

The diabetic patient presents a further problem, in that the administration of insulin further decreases the availability of blood sugar to the myocardium and causes myocardial depression, with an ensuing slowdown of the rate of conductivity. This state of affairs manifests itself in graphic changes of the electrocardiogram, occasionally in increased P-R and Q-R-S intervals, depressed ST segments, or smaller T wave which may eventually become inverted. These graphic changes may cause some perplexing moments in the interpretation of the later grams in the serial electrocardiography. Likewise, as a result of the myocardial depression resulting from the decreased availability of blood sugar, real angina may well develop again during the period of actual progress and recovery from the acute coronary. To obviate the possibility of a hypoglycemic state, and its sequellae, a diet should be prescribed which will permit a sufficient continued sugar spill in the urine.

A rather infrequent occurrence, yet perplexing, is the advent of hiccoughing, which occasionally is poorly amenable to correction. Aside from the more usual procedures, a few whiffs of ten percent carbon dioxide has proven effectual and in one instance, hiccoughing ceased abruptly with a remedy, if it may be dignified by such an appellation by a certain lady, who had seen the hiccoughing of inebriates cease spontaneously when Angostura bitters were used to saturate a teaspoonful of sugar, and this then

swallowed! This procedure may be augmented by placing the aforementioned substances upon a slice of lemon and this sucked in the mouth. An attempt to elicit the fundamental substance contained within the Angostura bitters from the manufacturers was not forthcoming, but the information was disclosed that gentian and vegetable oils were the essential ingredients.

After Care

The therapeutic approach would not be complete unless some stress was placed on the mode of mental and physical activity in the long months following the period of convalescence from the acute coronary attack. The patient, the family, as well as the physician himself, are often remiss in this phase of treatment. Suffice to say, that this therapeutic phase of the problem is of equal, and perhaps of greater import, especially since no step-like procedure may be adopted in each and every situation; all cases differ. The economical, business, professional and home environment all play an integral part, as does indeed the emotional attitudes of all involved.

In general, stress and strain in every conceivable direction is to be avoided. Over indulgence of any type is contraindicated. Any type of mental or physical effort should never be expended to the point of fatigue or the onset of signs and symptoms. This principle applies rigidly to all activities, especially imbibition of foods, physical activity, including sexual indulgence, mental activities, etc.

Certain principles and admonitions will be set forth briefly. In advancing years, peculiarly enough, there is a greater tendency for overindulgence in the character and quantity of foods. This yearning should be carefully curbed, to the extent that the patient will remain at his supposed normal weight for his age and height. Obesity is to be avoided. Again, a restriction in gas-forming foods and foods which the patient finds difficult to digest, is desired. A planned rest period for perhaps a half hour after each meal, with complete relaxation, is similarly desirable. Fluids should be taken in moderation and one or two ounce glasses of whiskey per day is likewise desirable, for it not only forms an excellent food but also has a desired vasodilatory effect. Stress and strain in any physical endeavor must be avoided; at any rate, any endeavor in which the patient is engaged should never be permitted to elicit pain, fatigue, dyspnea, etc. This is equally true for strained bowel movements; an adequate mild catharsis should be employed if necessary; small soapy enemas may likewise be employed. A gradual resumption to the level of his previous activities should be encouraged, and if at all possible, the level should perhaps remain below that of the previous state. This refers to both physical and mental labors, including hours of labor, hours of mental activities, types of entertainment, sexual indulgence, etc.

Such habits as smoking, drinking, long hours of card playing, prolonged discussion on topics of the day, emotional and stormy outbreaks in the home and the acquisition of recognized anxiety neurosis

must be curbed. The conservative viewpoint towards smoking is absolute elimination, yet this is most difficult to attain in many cases; and in order not to convey the impression of absolute invalidism, perhaps the wiser course would be to permit the smoking of one cigar following the two heavier meals of the day (or its equivalent in cigarettes). Here, as in no other disease, does an ancient proverb hold true, "due measure in all things", and if followed intelligently by all concerned, one will not fear the advent of an anxiety neurosis which many times gains serious proportions.

The advent of complications such as arrhythmias, congestive failure, angina of effort, dyspnea, hypotension, hypertension, diabetes, anxiety neurosis and others, bring forth their own special problems which are not within the scope of this paper but are of sufficient import to be definitely mentioned.

It is my opinion that for a protracted period of time following convalescence, the individual should be placed upon a so-called maintenance drug therapy, the principle thought being essentially that of vasodilation and sedation. It has been my practice to prescribe a capsule containing a xanthine derivative with some phenobarbital to be taken three or four times daily. Occasionally one preparation may not be well tolerated, then another may be substituted. On the other hand, all the derivatives may remain intolerated, then papaverine is utilized, or papaverine may be the preferable drug of choice. This procedure may well be regarded in the light of prophylactic measures, but to some extent exception has been taken to its practice; yet to me, it appears valuable as an adjunct in the therapeutic course of events. Continuing this method, occasionally it may prove desirable to permit the patient to carry with him tablets of nitroglycerine, grains 1/100, which when dissolved under the tongue will terminate an anginal seizure. Sometime it may be of value to anticipate situations which might conceivably cause undue stress and strain and thus initiate an anginal seizure, although, of course, the patient should never be permitted to place utter reliance on the all-curative effect of drugs; in this instance 1/2 or 1/4 grain tablets of erythrol tetranitrate may be given some fifteen minutes before the period of stress, the durative effects of this drug being about three hours. Mannitol hexanitrate, grains 1 to 1/2, may also be given some thirty minutes before the anticipated period of stress, the durative effects of this drug being some five hours.

The varied suggestions for therapeutic approaches, concerned with the problems of acute coronary artery disease and its after-care, are the result of the writer's experience and his delving into the literature, together with some original work accomplished prior to four years of army service. The writer has had no contact or the opportunity to study at any length the effects of heparin, dicumarol and thiouracil in the therapy of acute coronary artery disease, and can render no judgement in the practicability of their usage.

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THE USE AND MISUSE OF VITAMINS

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Vitamins, in recent years, have been used as a panacea by many in the medical profession and the laity as well. The indications for vitamin therapy are distinct and require astute observation for their determination. Vitamin deficiency may be the cause of some illnesses, however, a questionable deficiency is sometimes claimed to cause a variety of symptoms which when evaluated are found to be psychosomatic in origin.

The continuous stress on the varied symptoms, the stages of the disease and the threatened loss of social achievement due to the supposed lack of vitamins is detrimental to the public psychology. Overwhelming emphasis on "hidden hunger" causes faddism and too great an introspectiveness, which may lead some people to hypochondriasis.

This paper does not claim originality. However, the author feels that the status of vitamins, their indications for use and the dangers involved in overdosage and indiscriminate ingestion should be reviewed. Vitamins are a necessary natural or synthesized pharmacological preparation which should not be belittled, and where indicated, may promote good health and aid in the prevention of deficiency diseases.

Our knowledge of vitamins has been gained quite recently. Funk, in 1912, first used the term "vitamine" for the accessory dietary substances determined by Takaki and Eijkman as necessary for the prevention of beriberi and polyneuritis in fowls. (The "e" was deleted at a later date to prevent confusion with amines, a discrete nitrogen compound.) There has been a recognized connection between diet deficiency and disease for several hundred years. Scurvy was first seen during the Crusades and was found by the British to be a result of prolonged deprivation of citrus fruits.

Vitamins are essential to life. They are known chemical substances and approximately seven of them, A, B complex, C, D, K, E and nicotinic acid, have been synthesized and sold in a pure chemical form. Vitamins are needed in small amounts. They cannot be totally synthesized by the human body. It is believed by some that they are catalysts; others hold that vitamins may be utilized as enzymes or in enzyme systems; as is suggested by the relationship of vitamin A to visual purple, of D to plasma phosphatase and B to carbohydrate metabolism.

Vitamins are normally present in the human diet, with a small amount of loss occurring in the cooking and the preparing of the food. Normal diets, unaffected by faddism, may contain all the essential vitamins necessary for the maintenance of health. The ingestion of vitamin preparations produced by a chemical synthesis, or by the extraction from natural sources, is usually unnecessary unless there is

a definite evidence of vitamin deficiency. Ingestion of vitamins when there is no deficiency is wasteful; there is no utilization of the substances when there is tissue saturation and adequate stores are present in the organs. The overabundant vitamins are excreted and lost. The economic phase of vitamin therapy for the patient should not be overlooked.

Diagnosis

A vitamin deficiency may be discovered incidentally, during a routine examination. The tongue, cornea, skin, neurological examination and general state of health may indicate whether a vitamin deficiency is present. When a vitamin deficient diet is suspected, competent questioning by the examiner as to the type of diet, presence or absence of food faddism, marked chronic diarrhea, vomiting and alimentary disease, will elicit the possibility of insufficient intake and absorption and a resultant vitamin deficiency. Edentulous patients are usually vitamin deficient because of the liquid, low vitamin diet necessitated by the lack of teeth. These diets should always be supplemented with proprietary vitamin products.

Some of the main vitamin deficiency diseases are scurvy, beriberi, pellagra, rickets, sterility, hemorrhagic disease, xerophthalmia and polyneuritis. This is not an all inclusive list but it mentions most of the common disorders seen in hospitals and general practice.

The fat soluble vitamins, A and D, are obtained in their natural state from fish liver oils. In the extraction process, it is almost impossible to avoid incorporating protein substances in the final product. Many people show an allergic reaction to these natural oily preparations, and as a result the synthetic preparations from carotene and ergosterol are indicated instead. Vitamin D is formed in the body, to a small extent, as result of direct exposure of the skin to ultraviolet light. The normal requirement of vitamin D is increased during infancy, pregnancy and lactation.

A lack of vitamin A may produce night-blindness and xerophthalmia accompanied by a dischargeless conjunctivitis. There may also be an abnormal dryness of the skin, and pathologically, epithelia metaplasia exists. No close correlation has been demonstrated between the administration of vitamin A and a decrease in the incidence of infection. The appellation, antiinfective vitamin, is misleading and incorrect. There is no clinical evidence which demonstrates an antiinfective effect by any of the known vitamins. Infection and disease, however, decrease the body stores of vitamins through the increased metabolism, the anorexia and the limited diet, incident to disease.

Vitamin D is necessary for mineral metabolism and the maintenance of osteoblast and cartilage growth. Lack of vitamin D in infants results in infantile rickets with bossing of the frontal cranial bones, night sweats, rachitic rosary, Harrison's groove, leg deformities and epiphyseal enlargement. Adult rickets, or osteomalacia, produces deformities, back pains, weakness, stiffness and occasionally, signs of tetany. Calcium and the parathyroid glands are intimately associated with the bodily use of vitamin D. Insufficient absorption of either may produce bone structural abnormalities. Renal rickets, or calcium deficiency due to a low renal threshold for calcium as a result of kidney disease, should always be differentiated from vitamin D deficient states. X rays of the long bones, in a case of rickets due to a vitamin D deficiency, show coarse trabeculation with rough irregular calcification at the diaphysis.

Vitamin C, obtained from citrus fruits, prevents scurvy, which is a hemorrhage diathesis manifested by spongy, swollen, bleeding gums, loss of weight, asthenia and loose teeth. Infantile scurvy produces severe pain in the extremities, due to subperiosteal hemorrhages, and must be differentiated from poliomyelitis during the polio season. Vitamin C is necessary for the production and maintenance of intracellular cement substances and capillary integrity; and as such, is a good adjuvant, post-operatively, in aiding healing and scar formation. In scurvy, x rays of the long bones show osteoporosis with occasional elevation of the periosteum from a subperiosteal hemorrhage.

Vitamin K, the antihemorrhagic vitamin, normally found in green leafy vegetables, is necessary in the chemistry of prothrombin production in the liver. As vitamin K is fat soluble, its absorption is aided by the bile salts and acids. Biliary disease, especially cholelithiasis with common duct blockage, produces as a result of insufficient K absorption, an increased clotting time. All the fat soluble vitamins and precursors which require bile to facilitate their absorption, should be administered as a dietary supplement in liver and gallbladder disease, with or without jaundice.

Vitamin K is synthesized to some extent by the intestinal flora. A fairly common complication of the use of intestinal "sterilizers", such as sulfasuxadine, in diarrheal states due to bacterial infection, may be hemorrhagic in type. The sulfasuxadine, in reducing the number of invading organisms, also affects the normal flora of the intestines, and as a result may cause an insufficiency of the necessary vitamin K. Vitamin K should routinely be administered to pregnant mothers in the last trimester, in an effort to decrease the incidence of a postnatal hemorrhage in the newborn infant.

The B complex vitamins are a water soluble group containing a number of essential dietary substances. Included in the complex, are thiamin or B₁, B₂ or riboflavin, pyroxidin B₆, pantothenic acid, nicotinic acid and nicotinamide. The total number of sub-

stances isolated from B complex is large, and investigation is being carried on to determine the essentiality of each factor.

Cirrhosis of the liver has been found to be, not a manifestation of true alcoholic pathology, but a result of anorexia and the resultant deficient diet induced by alcoholism. Thiamin and B complex are believed to play a part in the pathogenesis of Laennec's cirrhosis. Alcoholic polyneuritis, manifested by a parasthesia, paresis, painful calves on compression, delayed but active reflexes and a history of a restricted diet and alcoholism, may be ameliorated by the intramuscular or intravenous administration of B complex. Oral administration is satisfactory, but requires more time for effective results. There is an increased need for thiamin in the presence of an augmented metabolism resulting from fever, hyperthyroidism and increased muscular activity.

Avitaminosis B₁ may produce beriberi, and it may be manifested as a wet or cardiac type with a cardiac decompensation; or a dry dermatological and neurological type with a dry pigmented, scaly, atrophic, cornified dermatitis, muscle atrophy and occasionally foot drop. Lack of riboflavin may produce mucocutaneous lesions, glossitis, conjunctivitis and seborrheic and follicular keratosis of the forehead, chin and malar prominences. Whole meal cereals, yeast, egg yolk and organ meats are high in thiamin content.

Nicotinic acid prevents pellagra, which is manifested by anorexia, loss of weight and strength, insomnia, lassitude, stomatitis, gingivitis, pigmentation of the skin and tachycardia. Severe pellagra is manifested by the typical triad of diarrhea, dermatitis and dementia.

Vitamin B₆ deficiency is mostly a laboratory occurrence and produces a characteristic skin disease in rats, a type of anemia in dogs and questionably a form of nervous disease in man. Choline is included in the B complex group. Research shows that it aids in the prevention of fatty liver in dogs.

Exploitation of pantothenic acid and paraaminobenzoic acid for human use is premature.

Vitamin E in the natural state is obtained from wheat germ oil and lettuce and is said to prevent the resorption of the fetus in the pregnant female; in the male, it is said to prevent degeneration of the germ cell.

It is believed that Vitamin E is associated with the enzyme system of the syncytium of the placenta, and the establishment of a balance between the syncytial erosive effects and the counteracting substances during the implantation of the fetus. A lack of vitamin E may thus be a factor in the mechanism of spontaneous abortion. Treatment of amyotrophic lateral sclerosis in young adults, and myotonia atrophica with vitamin E has been encouraging. Synthetic vitamin E is called tocopherol acetate.

The use of vitamin preparations as a supplement to the normal diet without frank manifestations of a deficiency disease is controversial. A great deal

of the confusion is due to a lack of understanding of factors, producing either a deficiency state, or balanced nutrition. Some investigators state that minimal symptomatology may be aided by vitamin administration. The general results of most investigators have been inconclusive.

There do exist, however, borderline deficiency states in which there may be a few clinical signs. None of these signs alone may be considered diagnostic. Early physical signs involving the tongue and corners of the mouth, early subjective complaints such as anorexia, fatigue and irritability and a history of individual or family dietary deficiencies will help to formulate a correct diagnosis. Confirmatory evidence may be obtained by a therapeutic test. Care must be taken to keep the patient ignorant of the medication used, in order to obviate an early subjective feeling of wellbeing due to an awareness that vitamin therapy is being used.

Therapy

Vitamin therapy may be oral, intramuscular or intravenous. The type of therapy is determined by the specific vitamin to be administered and by the necessity of rapid absorption and utilization. Oily preparations may be given by mouth or intramuscular injection—never intravenously. Oral administration is ineffective in the presence of emesis, cardiac failure with edema of the intestines and stomach and in diarrheal states. Parenteral vitamin supplements are recommended for patients receiving intravenous glucose and saline solutions, and may be administered through the intravenous tubing.

Vitamin therapy is indicated in three conditions; one, where there is frank vitamin deficiency; two, where there is a likelihood that the patient is, or will be exposed to a deficient state, as in pregnancy, gastrointestinal diseases, inadequate diet and alcoholism. Three, as a general prophylactic and supplementary measure to individuals who had previously been vitamin deficient.

These specific indications should obviate irrational and faddistic therapy.

The following table (Table 1) will illustrate the effective dosages required to prevent, cure, and act as a prophylactic measure against the vitamin deficiencies:

In recent years, very potent vitamin preparations have been placed on the market which were made available to the laity, and as a result, they have been used with little administrative supervision. No vitamin preparation should be prescribed unless the potency is stated in USP or international units, or milligrams, so that the dosage may be regulated and the purchaser may be guided to an effective and economical brand. Vitamin supplements, properly administered, are desirable; but for the most part they should be kept for the treatment of deficiency diseases.

Unhappy results may occur as an aftermath to indiscriminate ingestion of vitamins. The use of high potency vitamin D preparations, from irradiated ergosterol in 50,000-60,000 unit dosages may,

it is believed, result in early atherosclerosis and arteriosclerosis. The toxicity of vitamin preparations has not been well defined and the lethal dosage has not been determined. Large doses of vitamin D may produce an increase in Ca/P levels. Clinical evidence is controversial as to whether vitamin D is indicated in the treatment of chronic arthritis. It is certain, however, that one multivitamin capsule a day can do no harm, since many individuals have a mild hypovitaminosis. Until more work has established the absolute innocuousness of vitamins, large unsupervised dosage is irrational, foolhardy and wasteful.

Vitamin	Preventative	Protective	Curative
Vitamin D	800-1200 USP/day	?	1200-1500 USP/day
Vitamin A	3000-6000 USP/day	6000-8000 USP/day	10,000-40,000 USP/day
Vitamin C	50 mg./day	100 mg./day	200-400 mg. day
Vitamin B ₁	1 mg./day	3 mg./day	10 mg./day
Vitamin B ₂	1 mg./day	2 mg./day	3-15 mg./day
Vitamin K	human requirements	uncertain	2-20 mg. (synthetic)
Vitamin E	?	?	10-30 mg. (synthetic)
Nicotinic acid (amide)	20 mg./day (?)	50 mg./day (?)	150-300 mg./day

TABLE 1—This table is compiled from the sources listed in the references.

There is still need for the reeducation of the laity as well as some members of the medical and pharmaceutical professions, as to the indications and contraindications of vitamin therapy. To use vitamins as a placebo, as a last resort, or when the physician is not sure of a diagnosis is poor medicine, and may in addition do the patient harm.

Summary

The use and misuse of vitamins is discussed with emphasis upon the need for rational diagnosis of vitamin deficiencies and adequate and timely therapy.

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GALLBLADDER DISEASE

*A Report On One Hundred Cases**

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Over the period of the last several years, extensive data have been carefully collected from patients operated on for gallbladder disease at the Beth El Hospital. The gathering of these data has been facilitated considerably through the use of a rather complete "work-up" sheet. (Fig. 1). In the present paper some of the material obtained from the first hundred cases is presented. While many of the observations to be reported are by no means new, the relatively large number of cases involved, together with their arrangement in the present form, make this study of interest.

Incidence

The incidence of gallbladder disease in different age groups for the one hundred patients studied is shown, together with a breakdown on the basis of sex (Fig. 2). Since a total of one hundred patients was used, the figures on incidence along the side of the figure may be read directly as percent. The figures within each plot are the incidence percentages within the group for females (light areas) and males (dark areas).

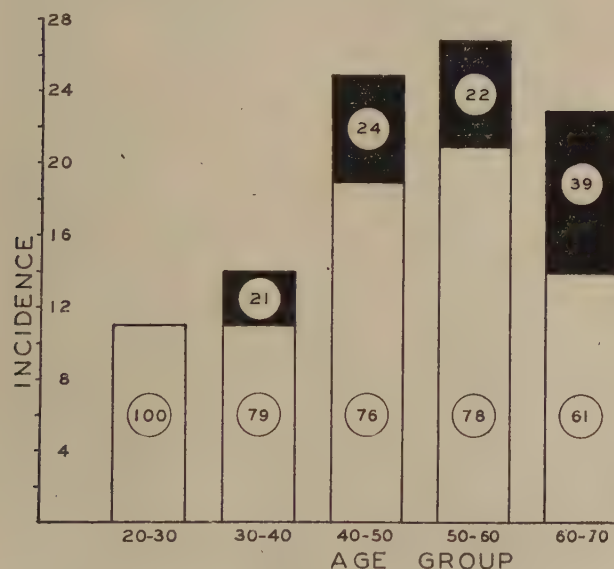


Fig. 2

It is of special interest to note that the incidence in the youngest group, twenty to thirty years of age, is not insignificant (11 percent), and is confined exclusively to females. In the next age groups, thirty to forty, forty to fifty and fifty to sixty, while the absolute incidence increases steadily, the frequency of occurrence within the sexes remains the same. In the last age group, sixty to seventy, the number of individuals affected decreases, probably due to

the shorter life expectancy. The percentages of males affected in this age group, however, is increased.

Symptomatology

The symptomatology of the one hundred patients operated upon is illustrated (Table I). The total numbers of individuals showing any one symptom are presented on the extreme right; the remaining columns show the breakdown for each group, together with the percentages within any group. Considering all age groups together, pain or colic, vomiting and tenderness are experienced by more than fifty percent of all the patients examined. Food intolerance, a palpable gallbladder, belching and flatus, fullness and jaundice are observed with decreasing frequency in the order indicated. The same general pattern is shown within each group. Among age groups, the symptoms of food intolerance, fullness, belching and flatus show the greatest variability in incidence; tenderness, pain or colic, jaundice and vomiting show the least.

Table I

Symptomatology Exhibited by One Hundred Patients Operated On for Gallbladder Disease

Symptomatology	Age Group										Total No. all age groups
	20-30 No. %	30-40 No. %	40-50 No. %	50-60 No. %	60-70 No. %	Total No.	%				
Fullness p.c	4 36	0 0	7 28	7 26	3 13	21					21
Belching and flatus	3 27	1 7	10 40	6 22	7 30	27					27
Food intolerance	7 64	3 21	9 36	13 48	10 43	42					42
Pain or colic	11 100	14 100	21 84	24 89	21 91	91					91
Jaundice	1 9	3 21	3 12	4 15	6 26	17					17
Vomiting	6 55	7 50	14 56	11 41	14 61	52					52
Tenderness	10 91	13 93	24 96	24 89	19 83	90					90
Palpable gallbladder	3 27	6 43	6 24	10 37	4 17	29					29
Total in each group	11	14	25	27	23	100					100

There is certainly no trend, either increasing or decreasing, for any of the symptoms studied among age groups.

Anesthesia, Operation, Pathology and Follow-Up

The type of anesthesia (general or spinal) used, kind of operation performed, pathology and follow up for each of the hundred patients are illustrated (Table II).

In most of the cases, spinal anesthesia was used (seventy-one percent); in the remainder, general

*From The Beth El Hospital, Brooklyn, New York.

Work Sheet

Name	Age:	Sex:	Hosp. No.	f. agrav. by
Admitted	Discharged		Results	g. relieved by
Chief Complaints:			12. Fever	
0 to 4 plus			13. Chills	
Symptoms	Degree Present	Duration	Date of Onset	0 to 4 plus
1. Fullness				Physical
2. Sour eructations				1. Spasticity
3. Belching				2. Rigidity
4. Flatus				3. Tenderness
5. Food intolerance				4. Palpable
6. Colic				5. Liver edge
7. Jaundice				6. Trapezius tenderness
8. Dark urine				7. Jaundice of sclera
9. Clay colored stools				8. Jaundice of skin
10. Vomiting				9. Operative scars
11. Pain				Past Personal History
a. frequency				1. Medical
b. character				2. Surgical
c. duration				3. Obstetrical
d. location				Menstrual
e. radiation				4. Venereal
				L.M.P.

Laboratory Sheet

Blood Count	Date	Date	Date	Differential	Date	Date	Date	Operation
R.B.C.				Polys.				1. Date:
W.B.C.				Lymphs.				Duration of Operation: minutes
Hb.				Monos.				2. Operative findings
Platelets				Eos.				a. Biliary
				Basos.				Liver
				Stabs.				G.B.
				Abnormal forms.				Common duct collections
Urine	Date	Date	Date	Micros.	Date	Date	Date	3. Operative Procedure
Sp. grav.				W.B.C.				1. Cholecystectomy
Color				R.B.C.				2. Cholecystostomy
Alb.				Casts				3. Cholecystectomy or choledochostomy
Sugar				Urobilin				4. Cholecystgastrostomy or duodenostomy
Reaction								5. Choledochostomy
Bile								6. Cholecystostomy and choledochostomy
Stool				Biliary Drainage				4. Drainage
Bile				Color				1. Number
Blood				Amount				2. Location
a. gross				Consistency				3. Type
b. micros.				Opacity				Anesthesia
Pus				Mucus				1. General
Parasites				Crystals				Nitrous oxide
Stones				Culture				b. Ether
				Debris				c. Cyclopropane
Blood	Date	Date	Date	Cholesterol	Date	Date	Date	2. Spinal
Sugar				Cholesterol esters				a. procaine
Urea				CO ₂ Combining				amount mgms.
Icteric index				Albumin				b. pontocaine
Ven Den Bergh				Globulin				c. nembutal
Direct								d. nupercaine
Indirect								amount mgms.
Special Tests	Date	Date	Date	Hippuric acid	Date	Date	Date	3. Local
Bromsulphalein				Glucose tolerance				a. local field block
Galactose tolerance				Bleeding time				b. root infiltration
Coagulation time				Quick prothrombin time				4. Basal anesthesia
Clot retraction time								a. avertin
X-ray Examination								Postop. Therapy
Preop. Preparation								Transfusion
Duration—days								Infusion
Transfusion								Oxygen
Infusion								Carbogen
Medication								Medication
Vit. K								Vit. K
Bile salts								Bile salts
Calcium								Calcium
Antispasmodics								Antispasmodics
								Morphine
				Results				Follow-Up
				Cured				Unimproved
				Improved				Died

anesthesia. Neither type appears to have influenced the kind of recovery one has (see bottom of table, under follow-up). While the number of patients showing complete recovery decreases slightly with increasing age, this can in no way, on the basis of the data obtained, be attributed to the type of anesthesia used.

Table II

Type of Anesthesia, Operative Procedure, Pathology and Follow-Up for One Hundred Patients Operated On for Gallbladder Disease

	Age Group										Total No. all age groups
	20-30 No. %	30-40 No. %	40-50 No. %	50-60 No. %	60-70 No. %	70-80 No. %	80-90 No. %	90-100 No. %	100-110 No. %	110-120 No. %	
<i>Type of Anesthesia</i>											
General	6 55	4 29	3 12	9 33	7 30	29					
Spinal	5 45	10 71	22 88	18 67	16 79	71					
<i>Operation Performed</i>											
Cholecystectomy	6 55	1 7	7 28	11 41	4 17	29					
Cholecystectomy with appendectomy	5 45	10 71	11 44	13 48	6 26	45					
Cholecystectomy with choledochostomy	0 0	3 22	7 28	3 11	13 57	26					
<i>Pathology</i>											
Cholelithiasis	11 100	11 79	20 80	23 85	23 100	88					
Cholesterosis	4 36	3 21	1 4	6 22	0 0	14					
Chronic fibrosing cholecystitis	4 36	7 50	20 80	14 70	23 100	69					
Pathological appendix	2 40	1 10	5 45	4 30	6 100	18					
Normal appendix	3 60	9 90	6 55	9 70	0 0	27					
Acute gallbladder	0 0	1 7	6 24	4 15	3 13	14					
<i>Follow-Up</i>											
Cured	11 100	14 100	24 96	25 93	19 82	93					
Improved			1 4	1 4	3 13	5					
Died				1 4	1 4	2					
Total in each group	11	14	25	27	23	100					

Three types of operations were performed, cholecystectomy, cholecystectomy with appendectomy, and cholecystectomy with choledochostomy. It is interesting to point out that the last type of operation had to be carried out with the greatest frequency in the sixty to seventy age group, and not at all in the twenty to thirty year group.

Where the appendix was removed along with the gallbladder (operation two), examination of the former showed pathology in one hundred percent of the members in the sixty to seventy age group. Among the other age groups, there appears to be no uniformity, except that a pathological appendix was never found in more than half the members in any group.

Cholelithiasis, as might be expected, was observed in most of the individuals operated upon, irrespective of age. Chronic fibrosing cholecystitis appears to increase with age, thirty-six percent in the twenty to thirty year group to one hundred percent in the sixty to seventy year group, and probably represents a real trend. An acute gallbladder condition was found relatively infrequent, with a good deal of variation among groups.

As indicated above, the greater number of individuals operated upon recovered completely. Only in the older age groups does the number of complete cures fall off slightly. Only two individuals died. Of the two individuals who died one had a gangrenous gallbladder and acute pancreatitis, the other a perforated gallbladder with peritonitis.

Comment

1. We avoid an operation in cases not showing definite stone formation or definite cholecystitis. Those cases in which an early operation was performed, were those seen within twenty-four hours of the attack and the pathology was preoperatively determined to be limited entirely to the gallbladder.

2. In this series of cases the operation has been withheld as far as possible from those cases evidencing biliary dyskinesia, or so-called chronic gallbladder disease without stones, as evidenced by eighty-eight percent of the patients having stones and the rest having cholesterosis of the gallbladder.

3. Appendectomy is done almost as a routine. (Forty-five percent in this series). Of the remaining fifty-five percent a majority had had previous appendectomies, or the operation was contraindicated due to the severity of the pathology in the right upper quadrant.

4. The common duct was explored almost routinely either by probing through the stump of the cystic or through an incision in the common duct. Twenty-six percent showed stones in the common duct and required choledochostomy and T tube drainage. There were no mortalities in this group of twenty-six cases. The consistent exploration of the common duct removes the true pathology and eliminates residual and persistent postoperative symptoms which necessitate reoperation.

5. The proportionate increase of incidence in males in the older age groups, probably is due to higher frequency of atherosclerotic changes in association with gallbladder disease and calculi in the male.

Summary

1. Extensive data on one hundred patients operated on for gallbladder disease have been presented. These data include information on incidence of the disease in various age groups; with a breakdown on the basis of sex, symptomatology, type of anesthesia used, kind of operation carried out, pathology and follow-up.

2. The collection of the data presented has been facilitated by a "work-up" sheet which is described.

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PREVENTION OF DEGENERATIVE AND MENTAL DISEASES

The Hope of Humanity

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Alexis Carrel in his book, *Man the Unknown*, makes the following statement: "The hope of humanity lies in the prevention of degenerative and mental diseases, not in the mere care of their symptoms. The progress of medicine will not come from the construction of larger and better hospitals, of larger and better factories of pharmaceutical products. It depends entirely on imagination, on observation of the sick, on meditation and experimentation in the silence of the laboratory, and finally on the unveiling beyond the proceneium of chemical structures of the organismal and mental mysteries!"

There is no doubt a great deal of extant and useful knowledge of medical matters known to the majority of medical men, who for various reasons are unable to get that knowledge made public. This often happens because editors of medical publications may not consider the matter contained in a paper suitable for their journals or not in accordance with generally accepted ideas. Carrel rightly lays great stress on imagination, which he places first in the requisites for advancement, and second, observation of the sick. That subtle factor, the working of the mind, must be the forerunner of experiment or the testing of certain theories. The gift of being able to allow one's mind to roam into strange realms is not given to everyone and the solution of an intricate problem may often be seen in a flash. It is not enough to say that a patient has been cured by certain means, since it could be argued that he would have recovered in spite of treatment; an experiment on a laboratory animal should prove the contention. Such views have however, proved a stumbling block to our advancement, since many pathological conditions do not take place until certain tissues have become sensitized. This may take years to accomplish, at the end of which time, the condition may not have been reproduced in the animal. After years of observation, contemplation and mental penetration, certain facts have been revealed to me which may cast some light on the question raised by Carrel and be of help to other medical men in the solution of their problems.

Man's existence is largely dependent upon his environment, his methods of living, education and the restrictions he imposes upon himself. He may over-eat, indulge his sensual pleasures to his undoing, work under conditions which are detrimental to health, etc.; but the greatest factor with which he has to contend, is fighting bacterial and virus infections. It is only within the last few years that we have begun to believe that most diseases are brought about from the diet, and there are certainly few who have realized the extent of the damage to the body cells resulting from this cause.

Our bodies are fairly well protected from bac-

terial invasion. Our skin, respiratory and intestinal tracts are well armed to prevent entrance of harmful organisms, but only to a certain extent. We also have certain powers within our blood and tissues to aid in the destruction of these organisms, but even these fail in time. There are, however, certain soft spots in our bodies where entry of organisms and viruses can gain admittance to the bloodstream and cause untold damage. These bacterial invasions now pass under the name of "focal infections" and are located in the tonsils, nasal sinuses, pockets around the teeth, gallbladder, prostate gland, appendix, cervix and pelvis of the kidney. The chief characteristic of these foci is that while the organisms breed undisturbed within them, the defense forces of the body are unable to exercise any of their functions, and they pass into the bloodstream unhindered. They either do this by being carried along by leucocytes or they run the gauntlet of the lymphatic glands and pass into the bloodstream through the thoracic or lymphatic ducts. There, they have to be dealt with, more or less, according to the resisting powers of the individual. We are all well acquainted with the damaging effects of bacterial invasion, such as syphilis, tuberculosis and acute streptococcal and staphylococcal infections, but we are not so well acquainted with the slow continuous entry of these two latter organisms. We know that syphilis may go on for many years and cause no marked symptoms, but that does not indicate that there is no pathogenesis taking place. Our pathology shows great damage to tissues, of long standing, with few symptoms to show for it. The same principle is at work with regard to chronic streptococcal and staphylococcal invasion. These patients are not ill and are often in full vigor, but if they get an overwhelming dose of these organisms, the result will be acute nephritis, arthritis, or inflammation in any tissue the organisms elect to locate themselves. In the majority of cases, however, the organisms are killed after a time without doing much harm.

First of all, it is necessary to realize that once the bloodstream is entered, organisms pass through every tissue which is supplied with blood, but there comes a time when, in most people, the organisms locate themselves in certain tissues where they are attacked and destroyed. We must not lose sight of the fact, however, that there is the same concentration of organisms in the blood passing through other organs, and that the organisms are passing through these other organs unhindered. The reason for an inflammation in a joint, for example, is that the organisms are being attacked and destroyed there. We know some tissues, such as the joints, kidney and heart, etc., are perhaps more prone to hold up these organisms than other tissues, so in assessing

the cause of damage to any tissue, this important fact must be borne in mind.

Attack on these organisms, or in other words, the sensitization of the tissues organizing the attack, results in inflammatory reaction and the laying down of fibrous tissue which interferes considerably with the normal functioning of the organ, often causing irreparable damage; in many cases, however, there is in time, a good deal of reabsorption of fibrous tissue. In this way an organ or tissue of the body may be grossly interfered with, be it joint, brain, nerve, heart, pancreas, liver, or any of the many tissues of which the body is composed. This is so elementary that it must be conceded by all. Such is the state of affairs where sensitization of the tissues has been established. Sensitization in the presence of an invasion may not come for years and gives us the phenomena of thousands of people going about with infected tonsils, sinusitis and pyorrhea, in an apparently sound state of health. Consequently, many medical men refuse to believe that many diseases are due to these factors, because they say, "I know a great number of people with these conditions who are perfectly well." But are they perfectly well? We have all known syphilitics who have lived for years without presenting symptoms of any sort and are apparently perfectly well insofar as being free from pain and able to do their work.

That organisms gain entrance to the bloodstream from foci of infection is beyond question. Therefore, we must recognize the fact that in every person who is breeding organisms in any of these foci of infection, bacterial invasion is taking place to some extent. What is the result? With the circulation of organisms and their destruction in the blood, liver or spleen, toxins are liberated and more or less dealt with. In time this detoxication begins to fail, as seen in some forms of anemia, both streptococcal and syphilitic. In fact, we may safely say that the blood becomes more or less contaminated with bacterial toxins and still no marked signs of disease will be observable by the average medical man.

Meanwhile, what is happening to the delicate cells of which man is composed? We are perfectly aware of what happens to kidney cells in an acute infection, but have we given any thought to what is happening to the cells of the brain, the pancreas and every other organ or tissues when they are continuously soaked in such a toxin? Can we be surprised that people go insane, that their cartilages degenerate, their arteries become atheromatous or that they develop high blood pressure? We cannot conceive of them escaping some sort of injury. Here we are, a community of humans, very few of whom do not have some focus of infection, with our blood contaminated in varying degrees with bacterial toxins, and we medical men wonder why all these diseases are so rampant among us and do virtually nothing to counteract it.

Sources of Infection

I should like to draw attention to a few specific infections. It is only within the last few years that much attention has been given to sinusitis as a

source of infection, yet its sum total potentiality for harm is enormous. Besides being a portal of entry for organisms which may affect any part of the body, it may cause disastrous effects by direct extension to the neighboring tissues, causing eye troubles and even direct invasion of the brain. Graves and Pickworth, of the Birmingham Mental Hospital, have drawn attention to the enormous number of mental cases due to direct invasion from infected sphenoidal cells. My own observations have indicated that the majority of epileptics are the result of the same invasion. We know that injuries to the surface of the brain create the deposition of fibrous tissue, which are liable to cause epilepsy. Therefore, if we get deposition of fibrous tissue from an inflammatory cause, we must expect the same symptoms to develop. What with a direct invasion and a bloodstream soaked in bacterial toxins, is it any wonder that there are so many thousands in our mental hospitals and jails?

The relationship between asthma and sinus infection is beyond question. A case of asthma without infected sinuses is rare. This being the case, any form of treatment short of curing the sinuses can not be successful. The author has recorded cases of tuberculous glands of the posterior cervical chain being cured by a successful treatment of an infected antra. One of the most common causes of toxic goiter is sinus infection, which is so often overlooked. The treatment of sinus infection has, until recently, been unsatisfactory, but new methods are producing better results.

In the majority of cases, we must put aside the common named diseases and think in terms of pathology. In dealing with heart disease, which is so rife, we must realize that there are few forms which are not due to direct bacterial invasion or the result of bacterial toxins, and that sound treatment which does not eliminate these conditions is of no avail. The author has been treating goiters successfully for thirty years by eliminating infections, and where the infection has been completely removed, there has never been a recurrence. The gland will subside to its normal size unless there are adenomas present, and even if there are, no harm will come from them as long as all infections have been removed. The enlargement of a thyroid gland after operation, is due to the fact that the original cause has not been eliminated.

We have an extensive field before us in regard to viruses, but the author is of the opinion that they conform to the same principles of entry into the body as streptococci and other organisms; in that they enter through the same portals and that by removal of these portals we close the door.

Such facts as are here mentioned are either true or false, but I think few could be found who would deny the truth of these premises. They are simple facts acceptable to the minds of most medical men and can easily be demonstrated by the individual himself without any intricate laboratory technique. The greatest problem we have to face is the reeducation of medical men along these lines and the instilling of these ideas into the minds of the students.

We are all agreed that the elimination of the spirochete from the body is not only a desirable accomplishment but an absolute necessity for health, yet the presence of the streptococcus is almost completely ignored. We tolerate the presence of this organism because we do not realize the harm it is doing, yet there is ample evidence that it is filling our hospitals and lunatic asylums with the sick and insane, causing degenerative changes in tissues and bringing about premature senility. Does any medical man seriously think that our delicate brain and body cells are going to escape some damage when subjected to prolonged exposure to bacterial toxins? There has been no final decision as to the cause of cancer, and we have yet to prove if this same factor has, or has not, some bearing on the case. If rheumatism, nephritis, neuritis, epilepsy, heart disease and insanity are due to these factors, what lasting benefit can be derived from giving these patients vaccines and drugs and leaving the organisms quietly to continue invading their blood-streams? We may give some temporary relief but that is all. If there is any doubt about these things, surely a board of medical men can assess the truth, otherwise, such a report would be of more value than all the research work that is going on in the world today.

Clinics should be formed in hospitals and certain lines of diagnosis and treatment adopted for the different types of focal infections. It is quite use-

less to look at a tonsil and say, "I do not think there is very much wrong here", as the harmless looking ones often harbor the most virulent organisms; it in doubt, cultures should be taken. The same applies to gingival infections, and the adoption of some definite treatment will insure the patient of being relieved of his infection permanently; a little scaling and painting with iodine does more to spread the infection than cure it. How many women are there at the present time going about crippled with rheumatism because no proper examination of their cervix has been made?

The proof of the truth of these contentions is to be found in the results of treatment not in laboratory experiments. There is nothing so dramatically successful as the result of the removal of an infected focus; all further invasion ceases and is eliminated forever.

At the present time we are paying some attention to the treatment of these evils, but in the near future they will not exist, since their prevention is far more simple than their cure. If one-tenth of the money spent on the upkeep of our hospitals, and the money lost through the inability to work were utilized for prevention along these lines, our public treasurers would be infinitely better off. Now is the time to make a serious attempt to put an end to this breeding of streptococci in our bodies and to eradicate them, as we also strive to do with the spirochete.

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PRELIMINARY REPORT ON THE CHEMOTHERAPY OF SINUSITIS

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We are beginning to forget and perhaps neglect the large number of patients with a chronic sinus disease. Because of the newer chemical therapeutic agents, the sulfonamides and penicillin, acute cases are well cared for. The mild symptomatology causing hardly any annoyance and ranging to the more involved pathology giving severe headaches, temperature, debilitating symptoms, etc., are being treated by the family physician with these newer agents plus the addition of some local measures. Some of the patients respond, others retain the infection more or less. Any secretion left in the sinus cavities, especially the antrum, causes inflammatory changes of the mucous membrane and eventually thickening of the mucosa with polypoid degeneration. Often the secretion is too thick to drain or be blown out, especially if there is an obstruction at the ostia of the sinuses.

The rhinologist would never discharge as cured, any patient whose sinuses contain secretions, although we may assume that the sulfonamides and penicillin have rendered that secretion sterile. With accessible ostia to the sinuses, it is a simple matter to blow out or wash out such secretions. In any event, the rhinologist ascertains the accessibility of these ostia, and with

the attention to that region, applies the hygienic measures which permits free drainage through them. This is a therapeutic procedure worthy of consideration.

We do not always have the ideal conditions which quickly and effectively drain the maxillary sinuses. Of course, antrum puncture as an acute emergency measure is valueless unless the opening can be kept open. Thus the patients will not accept this mode of therapy as being wholly effective, and of course, it is not feasible to do this because it is not necessary either to puncture nor operate on all cases of chronic sinusitis. There are, however, exceptions—the inaccessible ostia—the very chronic cases with atrophy already beginning—the time element—cases with thickened membrane, etc.

The picture of maxillary or frontal sinusitis when associated with irritation of the trigeminal nerve is rather difficult to diagnose. However, in those patients presenting a history of acute or chronic suppurative of the sinuses, wherein an accumulation of pus is evident, diagnosis is comparably simple. There are forms of chronic maxillary or frontal sinusitis presenting congestion only. The examination of the ear, nose and throat may not reveal the presence of pus in the

sinuses. Thus, in these conditions, only a mucus excretion from the ostium of the sinuses involved is observed.

Among the many drugs routinely used, colloidal silver preparations in various forms received prominence and were accepted by many physicians. Although these preparations are still used as antiseptics, especially when applied to mucous membranes of the nose and throat, they should not be used indiscriminately. Colloidal silver solutions employed as a means of prophylaxis and treatment of upper respiratory infections, may do more harm than good. The desirability for antiseptic action to prevent spreading of an infection may be of primary importance, yet, colloidal silver solutions may injure the tissue cells.

In the author's opinion, the evidence for the routine use of silver preparations and solutions for the treatment and prophylaxis of colds and upper respiratory infections, does not warrant its preferential use over other drugs. Cases of argyria have been reported, thus confirming the clinical experience of others as well as myself.

Of late, the author has been using as local therapy, a 1.0 percent oil solution of alpha Carboxyl-n-dodecyl Cyclo-pentane combined with 3 percent essential oils, Terpenes and Iodoform 0.5 percent with Benzyl Alcohol 0.5 percent. In a series of eighty-seven cases projected over a period of seven months, objective as well as symptomatic improvement in all cases were observed. While some of the patients were quite uncomfortable in spite of the various recognized therapies, and while their resistance was almost completely negative, it gave the basis for a rather complete study of this chemotherapeutic agent. The above mentioned series of eighty-seven cases represents four hundred and two treatments of

which the average patient received four treatments, while in the more extensive cases, six treatments brought notable results.

The writer finds this preparation to be a highly effective agent which has a definite place in the armamentarium of the rhinologist. It is definitely bacteriostatic, but its most important action is the high solvent and miscible action it has on very tenacious mucus. It will definitely empty a sinus of any loose secretion, so that at a subsequent examination, two to four days later, even the x ray picture changes. The oil may be dropped into the antrum or it may be added to the water for irrigation of the sinuses. The author, in his own practice, uses a syringe, the barrel holding 10 cc. Add $\frac{1}{2}$ -1 cc. of the oil and mix it in a glass—use hot water to obtain a suspension of the oil in the water. Then squirt (under pressure) into the antra. The fluid not returned is blown out forcibly from first one nostril and then the other nostril. There will always be enough oil left for continuous action. Usually the patient returns in two days and subsequently the treatment is repeated.

Although the topical method on the above series was used, the author is continuing his work with the parenteral* preparation of the above mentioned formula. In the four cases the author has under this treatment, he has encountered favorable results. The intramuscular injections are supplemented with topical therapy which the patient can use between visits. While the cases to date have shown marked symptomatic improvement, it is his purpose to continue the series with an increased number of patients and report on this phase in a later paper.

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*The material used in the above series of cases is known as Sinorol, supplied by the Vincent Christina Laboratories, New York.

THE BAT

WILLIAM RENWICK RIDDELL, M.D. (*Deceased*)

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"That damn bat", I heard my super excellent, very professional nurse, Miss Mary Longfellow, (though that is *not* her name), exclaim, as she saw a dark object flitting round her patient's room. Her exclamation is characteristic of the opinion generally held of the creature.

Of the two well-known mammals to which Providence has furnished what were considered wings, I remember that once and only once, several decades ago, Consule Planco, saw a nest of flying squirrels, flying from one tree to the other. They did not seem to make much use of their so-called wings, but the other quadruped, the bat, is everywhere—at least everywhere he is not wanted, using his leathery wings with perfect ease and skill.

In those days in upper Canada, the left hind foot of a bat, carried in the left hand trousers pocket,

was as efficacious a prophylactic against rheumatism as the traditional walnut. Three drops of bat's blood taken on toast just before going to bed was considered a preventative of nocturnal, involuntary diuresis. (No, it did not always work, *crede experto*). The bat has a long story in the history of medicine—and not folklore alone. In old Egypt, where trachoma and similar diseases were common and generally treated *inter alia* by evulsion of the eyelashes, they were prevented from returning by an ointment, one of its constituents was bat's blood. An affection of the throat was treated by a bat which was cut open and bandaged on the affected part. The effect of bat's blood if put in the eye was believed to result in blindness, ("blind as a bat") but, at another period, the urine of a bat was an ingredient in a favorite preparation for dimness of

sight, just as the Arabian school used the feces or urine of the bat to cure leucoma. Nor was this the only disease in which these excretions were prescribed. They were believed to be equally effective in dissolving calculi in the bladder.

At some periods, the bat was employed to attract the love of a desired one. "Take out its eyes when alive and let it go. Make a little wax dog, put the right eye in the dog's left eyesocket and the left in the right. Throw this at a crossroad and you will fetch him." (I am not to be taken as recommending this to our girls and boys on this Continent).

The Arabian use of a bat which was killed and rubbed on a body part to prevent the growth of pubic hair in children, savours of magic—as does a bat's head or its heart put without a man's knowledge under his pillow give him insomnia. Cooking a bat in sesame oil and using it as an embrocation for sciatica was "regular", as was its use as a diuretic, boiled in water and locally applied. In some parts of India to this day, a bat's bone is tied round the ankle as a cure for rheumatism. Apparently the Indian has not gotten on to our upper Canadian discovery of the prophylactic qualities of the bat's foot.

Plinius Secundus who wrote *de omnibus et quibusdam aliis* tells us that, "The blood of a bat, mixed with the juice of a thistle, speedily cures snake bites. Its heart is an antidote for the poison of ants." He, to a certain extent, agrees with the Arabians as to the depilatory virtues of the bat but prescribes its blood or its brain. So, too, to cause insomnia, "dry and carry a bat's head." Nor does he shun magic. "A living bat carried three times round the house and then nailed head down outside the window is a protective amulet, and it will protect sheep if hung by its feet over the door of the pen."

Opinions seriously differed as to the depilatory effects of the bat. One passage in the old Syriac Book of Medicines says: "Cut off a bat's head and boil it in olive oil and rub it where you wish the hair to grow and it will grow." Another passage has it "Smear the blood of bats where you wish the hair not to grow and it will not grow."

Assyrian women took a male bat, boiled its head and applied it to their own head to make grey hair black. In some parts of India to this day the wings of bats, crushed, mixed with coconut oil and other ingredients, kept underground in a vessel for three months are used to prevent hair from falling out or turning grey.

In Algeria if a bat flies over the head of a child, it is believed the child will be attacked by "bat's illness" characterized by protruding eyes, crying, headache and sometimes loss of consciousness. In some parts of Germany it is believed that if a bat settles on a person's head that person will become bald. In Canada, many women are afraid of a bat settling in their hair—why?

In English medicine the very noted physician of James I and Charles I, Sir Theodore Turquet de Mayerne, had a "Balsam of Bats", an unguent for hypochondriacs, composed of adders, bats, sucking-whelps, earthworms, hog's grease, stag's marrow and the thigh bone of an ox. While Robert James as late as 1752, in his *Pharmacopoeia Universalis* says: "The flesh and blood of this animal are used, the first of which, being prepared, is good for a Schirrus and the gout, and the blood cures an Alopecia".

Anyone who wishes to know more about "that damn bat" is recommended to consult the delectable treatise, *The Bridle of Pegasus* by Warren R. Dawson, from which much of this paper is taken.

New White Crystalline Penicillin

Actual production of penicillin in the purest and most potent form yet developed commercially, was announced recently by the Heyden Chemical Corporation, Princeton, N. J. Known as white crystalline penicillin, this new form of the drug can be stored in its dry state for three years without refrigeration, twice as long as the familiar yellow product, which requires refrigeration. Described as a major advance in the penicillin field, production of the new white crystalline type comes after more than two years of research in the company's Princeton laboratory.

In January, 1944, penicillin as it was then known, was required to contain approximately 250 active penicillin units per milligram. The maximum possible potency for the G type was set up by the Pure Food and Drug Administration as 1,667 per milligram. Subsequently, penicillin potency was lifted to more than 1,000 active units. The new product approximates the 1,667 units set up as a maximum possible potency for its type. It is the G type, most thoroughly familiar of those already known, which is used as the basis of the white crystalline form.

The ordinary yellow penicillin must be stored under refrigeration, and government regulations require an eighteen months' dating, which means it should not be used when it is more than a year and a half old. The new crystalline type in its dry form can be stored without refrigeration for at least three years. This feature permits long distance transportation of the drug without refrigeration even in tropical areas. One of the rigid tests required by the Food and Drug Administration demands that it withstand a temperature of 212 degrees Fahrenheit, at which water boils, for six days without appreciable loss of value.

Like previous types, the new white crystalline penicillin when in solution must be kept under refrigeration unless used immediately. Where previous important advances in the development of new strains and greater yields from various penicillium molds were originated largely by research organizations and universities, the production of this purer penicillin can be attributed exclusively to the industry.

Editorials

Medicine in War and in Peace

Most Americans are peace-minded, and believe that no good can come of the loss of life and property and the general disorganization of society occasioned by war.

Professor John F. Fulton, head of the Department of Physiology at Yale, and author of the *Life of Harvey Cushing*, makes a different appraisal in the autumn 1946 issue of *American Scholar**, which is the official organ of *Phi Beta Kappa*. Dr. Fulton thinks that medicine puts forth its best efforts under the aegis of war, and that new discoveries and methods of treatment of great value have come out of World War II. Reciting in brief the work of Joliot-Curie, of the French Atomic Commission, who has been studying the effect of atomic fission upon malignant growths, there seems to be, at least, an element of promise in this still little-understood all-powerful agent.

Wartime research has probably brought more benefits to surgery than to any other field of medicine. Under chemotherapy, we now close wounds which were formerly left open for drainage for days or weeks. The first principle is to cut away all tissue which is not sufficiently nourished to survive, to cleanse the wound thoroughly, apply sulfa or penicillin then suture. However, when some inexperienced enthusiast neglects débridement and cleansing, and sews bacteria into a wound, the focus is set for a terrible systemic infection.

The "chemo agents", sulfa and penicillin, now save arms and legs which under the hurried stress of the battlefield would ordinarily be amputated. In fact, at the front lines, amputation had to happen many times in order to save a life and go on to the next *blessé*. When enough time was at hand, the wounded man could be sent back to the base and receive detailed and thorough treatment, bent on restoring the parts to normal and encouraging the body cells to create new tissue. The old slogan was: "When in doubt, remove it". This may well be changed to "If it bleeds it may recover". Or, "If in doubt, leave it for another's decision".

The use of whole blood as well as the elements thereof (plasma etc.) offer new hope for those nearly exsanguinated. It is necessary to restore not only

the fluid in which corpuscles float but the corpuscles themselves, since the formation of blood cells in the marrow is a relatively slow process, where time is of the essence. The British found it impossible, early in the war, to "keep whole blood". In 1943, because of the splendid work of the National Research Council in preparing and maintaining blood against deterioration, it was possible to fly it to the far corners of the world within twenty-four hours and to use it immediately upon arrival. It is said that many thousands were saved who would have died on Leyte, Okinawa or the islands of the Pacific hitherto difficult to find on a map.

Immunization also did wonders in prevention, not only against bacterial infections, but insect-borne diseases. Everyone knows the story of DDT in New Guinea, the Solomons and other areas so fatal to the white man. Dr. Fulton quotes Brigadier General Elliott C. Cutler, chief consultant in surgery of the European Theater of Operations, as follows: "In our Civil War, the mortality rate (from tetanus) was from eighty-nine to ninety-five percent. During World War I, large statistical evidence showed a mortality rate of twenty to fifty-eight percent; but in this second World War, there are only eleven cases known—among 10,700,000 men". This is, indeed, a most extraordinary showing, but it is based upon animal experimentation".

Recently, the *New York Times*, and perhaps some other Metropolitan dailies, carried a diatribe against vivisection in the form of an ad put out by the headquarters of the Antivivisection Society in Chicago. The copy boldly stated that the results from work on animals (dogs) has been entirely fruitless and that there is an increase in heart disease, cancer and other fatal diseases in spite of animal studies. We sent a clipping of the advertisement to Dr. Morris Fishbein, inasmuch as the enemies of vivisection are so very active in Chicago. He replied that there are so-called "leading newspapers" which will write editorials upholding animal experimentation and lauding the results of laboratory workers with one hand, while taking money against the very same with the other, through the advertising departments. To continue with Dr. Cutler's observation, he says: "The basis of the establishment of a proper toxoid (against tetanus) rests squarely upon animal investigation, and no greater debt could be acknowledged to our friends in the animal kingdom than this advance for the good of humanity".

Professor Fulton in the closing paragraph of his article observes that this country badly needs cabinet posts for medicine and public health. As it is

*Peacetime Implications of Wartime Medical Discoveries.

now, the President has no one at hand in rightful authority, to advise him concerning problems of national public health or of medicine as a practical science. It would be well, therefore, if our legislators would consider the need for two cabinet officers—one for medicine, and one for public health. Each field is too large to be under supervision of one single head or department, but under two officers working cooperatively, the lessons learned from war could be integrated, coordinated and applied to the needs of peace. This may be an Utopian dream, but one can only hope that in the not too distant future it will be realized. Its basis is the greatest good to the greatest number, and that must always be the measure of any forward-looking enterprise.

Psychiatry in the Treatment of Disease

It is the discussion at the end of an article in the *Lancet*, October 5th, entitled "Conducing to the Cure of Neurosyphilis by Induced Malaria. Social Psychiatry in Treatment" by Maeve Wheeler, M.D. and M. H. Bree, psychiatric worker, that we are concerned with at present. The article is an argument for treatment of the sick, not exactly on novel lines, but along a line of practice not widely followed, but which appears to be gaining ground. The argument given, is that the individual should be considered as well as the disease. Thus, all factors affecting the patient adversely must be considered with a view to their elimination or mitigation, either by enabling him to deal with these himself or by actually removing or altering them by outside interference. As a matter of fact, it is the duty and object of the medical man, not only to use his own knowledge and skill with the resources available to him, but also to recognize as a part of his duty the obligation to assist the patient, the attendants and the external circumstances to be conducive to the cure; or at any rate, to aid in an improvement in the mental and physical elements of the body. The body acts on the mind and the mind reacts on the body to the benefit or damage of both. A vicious circle is established which must be broken. It stands to reason that if the mind is disturbed, it will react to the detriment of the physical forces and to recovery. The old slogan "Prevention is better than cure", is as true now as when it was first said. On this account, teamwork has, or should have, a definite place in the treatment. Taken for granted that in most circumstances the statement is obviously apposite, the argument is that

nowadays a doctor may do his best but cannot do all; he has neither the time nor the requisite knowledge. Therefore, a team should consist of medical and nonmedical personnel, in which the nonmedical personnel will look after the social aspects of an illness for which they are adapted mentally, while experience has matured this inherent, or rather, inborn knowledge; and by close collaboration with the doctor the best results should be obtained. In this country teamwork has been going on for a considerable time, and where the members fit in, it has been successful. In Britain it seems to be on trial, and much can be learned from the United States. The personal equation must be considered always in treating the sick, the confidence in the doctor and in the treatment generally goes a long way towards furthering recovery.

World Health Commission

The New York Academy of Medicine has provided facilities for the World Health Organization of the United Nations until the organization is established in a permanent home, either in this country or abroad, according to a recent announcement by Dr. George Baehr, president of the academy.

Although the secretariat of the United Nations will be located in the United States, no decision has been reached as to whether the permanent quarters of the World Health Organization will be in the buildings of the former health section of the League of Nations, in some other large European city, or in this country. Because of the difficulty in finding space in New York for a temporary period, the World Health Organization appealed to the academy which, by rearrangement of other activities within its building, has been able to allot space for the work of the Interim Commission.

The World Health Organization was established by the International Health Conference convened by the Economic and Social Council of the United Nations. The conference met in New York from June 19 to July 22, 1946. The constitution of the organization, adopted and signed by representatives of sixty-one nations, provides for a broader scope of activity and a potentially more fruitful program than any previously conducted in the field of world health. Provision was made for continuing the work of existing international health agencies pending their absorption by, or integration with, the organization; thus, assuring the development of a single international health organization which it is hoped will shortly become universal in scope.

News Items

Centennial of Surgical Anesthesia.—A recent publication of interest is the *Centennial of Surgical Anesthesia*, an annotated catalog of books and pamphlets, dealing with the early history of surgical anesthesia. It was compiled by Dr. John F. Fulton and Madeline E. Stanton, A.B., Yale Medical Library.

Fellowship in Rheumatic Disorders.—New York University, New York, has announced a one year twenty-five hundred dollar, nonresident fellowship in rheumatic disorders open to graduate students with two years training in internal medicine or its equivalent. Training will be directed by the chief of the Bellevue arthritis clinic.

American Clinical and Climatological Association.—At the fifty-ninth meeting of the American Clinical and Climatological Association, held at the Hotel Hershey, Hershey, Pa., on October 21-23, 1946, Dr. T. Grier Miller, Philadelphia, Pa., was elected president. The next meeting will be held at Colorado Springs, but the date has not yet been decided upon.

Research Unit To Investigate Mental Diseases.—Dr. Frederick MacCurdy, state commissioner of mental hygiene, recently announced that a unit for biopsychological research in mental diseases has been established at Rockland State Hospital, Orangeburg, N. Y., to be operated under the joint auspices of that hospital, the New York State Psychiatric Institute, N. Y. and the Council for Research in Social Sciences, Columbia University.

Nobel Prize.—Professor Herman J. Muller, Columbia graduate and famous geneticist of Indiana University, has been awarded the 1946 Nobel Prize for Medicine. Professor Muller received the prize of \$36,000 for his work in discovering that mutations, or biological changes in species, may be produced by x rays. Professor Muller's distinguished career took him from Columbia to Edinburgh University, the Institute of Genetics in Moscow, Amherst College and finally to Indiana University.

National Gastroenterological Association.—The National Gastroenterological Association has announced its annual cash prize award contest for 1947. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy.

Requests for further details should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

New Cancer and Research Treatment Hospital.—A gift of a million dollars from the Goldblatt Brothers Foundation to establish The Nathan Goldblatt Memorial Hospital as the center of the University of Chicago's extensive program of cancer treatment and research, was recently announced by Ernest C. Colwell, president of the university. As a clinical center, the hospital will be devoted exclusively to treatment of cancer and other neoplastic diseases. The Nathan Goldblatt Memorial will be the only university hospital in the country with the entire staff engaged in full-time cancer treatment and research.

International Spanish Speaking Association of Physicians.—On November 25, 1946, at the Hotel McAlpin, N. Y., the International Spanish Speaking Association of Physicians inaugurated the twentieth season of scientific sessions, with a symposium on juvenile delinquency. Dr. J. M. Gershberg, president of the association, recently returned from a three month trip to Latin America and San Francisco; during which time he established five new chapters. In addition, fifty physicians from Latin America have promised Dr. Gershberg that they will come to New York next fall to attend a medical congress, as guests of the association.

Study of the Metabolism of Bacteria.—A grant of \$17,200 from the United States Navy to the department of biochemistry, Western Reserve University School of Medicine, for the study of the metabolism of bacteria was recently announced by President Winfred G. Leutner of Reserve University. The grant will support the first year's work, in a three year program to be conducted by Drs. Harland G. Wood, head of the department, Lester O. Krampitz and Merton F. Utter, associate professors of biochemistry. They will use bacteria as experimental organisms to throw more light on the living processes of humans.

Jewish Memorial Hospital.—The Jewish Memorial Hospital has established a clinic for the study and treatment of erythroblastosis fetalis. The clinic will be under the direction of Dr. Harry Wallerstein, hematologist to the hospital, in collaboration with the following committee: Dr. Milton J. Goodfriend, attending obstetrician; Dr. Michael Schuman, attending pediatrician; Dr. Alfred Angrist, director of laboratories, and Dr. Philip Levine, consulting serologist.

The clinic solicits blood specimens for study, from cases with implications of erythroblastosis fetalis. In suitable cases, mothers will be accepted for admission to the prenatal clinic and/or delivery. Babies born outside this institution, in whom the suspicion of erythroblastosis exists, will also be accepted for admission.

First Mobile Eye Clinic.—America's first mobile clinic for providing eye care in remote areas was recently dedicated at Trenton, N. J. Taking part in the unveiling of the nation's first eye clinic on wheels were Governor Walter E. Edge, of New Jersey, members of the New Jersey Commission for the Blind and state public health and welfare officials. Dedication of the two and one-half-ton unit, sponsored by the New Jersey commission which has pioneered in bringing eye care to the needy in sparsely settled areas of the state, were held on the capital grounds.

Somewhat similar to the mobile optical units used overseas during the war by the armed forces, the rolling eye clinic will provide a public health service rivaling that of the mobile hospital clinics now in use in the south.

Medical Allied Science Corps.—Congressional legislation for a Medical Allied Science Corps is being requested by the Navy Department. Naval Reserve and temporary regular officers in inactive, as well as active status, holding doctor's degrees in specialized fields related to the medical profession, may apply for transfer to the regular Navy for service in this projected corps. Officers on active duty who wish to be retained under this program, until legislation authorizing the proposed new classification is passed or fails of enactment, should submit applications to their commanding officers. Qualified officers on inactive duty should submit applications to the commandant of their home Naval district, and they may then be ordered to active duty at their request if accepted.

Meeting of Medical Consultants of World War II.—The first formal meeting of the Society of United States Medical Consultants of World War II, was held in Sternberg Auditorium at the Army Medical Center, Wash., D.C., October 18, 1946. Major General Norman T. Kirk, the Surgeon General, and Brigadier General George C. Beach, Jr., Commanding General, Army Medical Center and Walter Reed General Hospital, were hosts to the group. The society is composed of doctors, formerly medical officers and now returned to civilian life, who were consultants for the Army Medical Department in the Surgeon General's Office, in overseas theaters and in the zone of interior during the war. They represent the leading men in their specialized fields. The group has formed this association under its own initiative and with the purpose of furthering the advance of the medical profession in the United States, with the particular objective of establishing a close liaison with army medicine. Its plans are in the formative stage as yet and one aim of this meeting was to set up a working mode of procedure which will enable them to carry out their objectives.

Friday Afternoon Lectures.—Beginning with January 3rd through January 17, 1947, the following lectures in the twenty-first series of Friday Afternoon Lectures will be given at the New York Academy of Medicine:

January 3: Treatment of chronic alcoholism by the general practitioner, by A. J. Carlson, professor emeritus of physiology, University of Chicago School of Medicine;

January 10: Recent advances in the management of skin diseases, by Marion B. Sulzberger, associate clinical professor of dermatology and syphilology, New York Skin and Cancer Unit, Postgraduate Medical School and Hospital, Columbia University and

January 17: Recent advances in therapeutics, by Harry Gold, associate professor of pharmacology, Cornell University Medical College.

Neurology and Psychiatry Course.—Forty-two graduate physicians, drawn primarily from the staffs of state or federal hospitals, are enrolled in a twelve-week course in neurology and psychiatry, now being given by a staff of specialists at the University of Illinois College of Medicine, Chicago. The course is mainly a review in preparation for examinations by the American Board of Psychiatry and Neurology. It also includes developments of the war years, when many of the physicians now enrolled were in the armed services; and consists of six half-day sessions each week, with each session in a different specialty. Physicians may register in one or more of the six specialties and attend only those sessions each week.

Applications are now being accepted by Dr. Ben W. Lichtenstein, director of the course, for a second identical course in the same subjects beginning in April 1947 and extending through June.

Physical and Educational Instructors.—Surgeon General Norman T. Kirk recently announced that there was a need for physical and educational reconditioning of personnel in the Army, to continue on with the great convalescent reconditioning program practiced during the war. Because of the present shortage of officers and enlisted men in the physical reconditioning service, personnel who have had experience in that field, regardless of the branch of service in which they served, are sought. Requirements are (1) previous military experience, (2) a minimum of two years in a college physical education major course or its equivalent in experience, and (3) a demonstrated ability for leadership. Civilians with the necessary backgrounds are being sought for military training so they may qualify under existing standards. Persons interested in teaching and working with patients in educational reconditioning are also sought by the Army Medical Department.

Walter Reed Course in Preventive Medicine.—As part of the intensive professional training of the Army Medical Department, a new course in elementary preventive medicine has been opened at the Medical Department Professional Service Schools, located at the Army Medical Center.

Colonel Rufus L. Holt, commandant of the schools, explained that the purpose of the course is to provide preventive medicine officers for the immediate needs of the army. "To analyze and foresee conditions which may lead to the spread of disease, and to take the necessary steps to prevent such spread, is the function of the preventive medicine officer. His work closely parallels that done by the public health doctor in civilian life".

The five weeks' course will consist of lectures and field and laboratory work.

Schering Medical Research Division.—Mr. Francis C. Brown, president of Schering Corporation, announces three new appointments to the medical staff of the company, with plants at Bloomfield and Union, N. J. Dr. Harry Seneca, New Orleans, La., formerly assistant professor of tropical medicine at Tulane University School of Medicine, has been assigned to the Schering Medical Research Division to carry on special research studies in the field of tropical diseases. Also appointed to the medical research division of Schering was Dr. W. Alan Wright, recent principal medical officer of the U. S. Federal Trade Commission, Washington, D. C., and Dr. M. William Amster, New York, until recently serving in the U. S. Army Medical Corps with the rank of Lieutenant Colonel, has been designated a member of Schering's medical service department.

Memorial Laboratory for Study of Infectious Diseases.—A memorial laboratory for the study of infectious diseases, the eighth building of the National Institute of Health at Bethesda, Md., was officially dedicated on October 27th at a ceremony attended by medical and civilian dignitaries of the United States, Russia, and China. The three-story, red brick building, built at a cost of \$1,500,000, will be the scene of intensive research on Rocky Mountain spotted fever, typhus, "Q" fever and other Rickettsial diseases; undulant fever, tularemia, psittacosis, poliomyelitis and other central nervous system viruses, as well as the common cold. Dr. Charles Armstrong, chief of the division of infectious diseases, National Institute of Health, will administer the memorial laboratory. Dr. Armstrong himself has several times been the victim of disease in the course of his work in research, and many of the unique preventive facilities incorporated in the new laboratory are a result of his experiences.

Personal.—Dr. Janet Fowler Nelson has been appointed to direct the new and expanding program of education for marriage of the Planned Parenthood Federation. Dr. Nelson, as consultant on marriage and family life education, will be in charge of helping the three hundred and fifty local groups affiliated with the federation to develop services which she considers essential to the strengthening of the American family.

Dr. Robert E. Johnson, associated with the Harvard University Fatigue Laboratory since 1935, has been named technical director of the Army Medical Nutrition Laboratory, Chicago, Ill. Dr. Johnson succeeded Dr. George N. Berryman, commanding officer and technical director of the laboratory since its founding in 1941, who left that position to enroll in the University of Illinois Medical School.

Brigadier General Joseph E. Bastion, commanding general, Percy Jones General Hospital, was recently presented with the Distinguished Service Medal at Fort Custer, Mich. Major General Shelley U. Marietta, U.S.A., (Retired), is the only other hospital commander to receive the Distinguished Service Medal in the history of the army. He was formerly commanding officer, Walter Reed General Hospital, Washington, D. C.

Major General Norman T. Kirk, the Surgeon General of the Army, was recently awarded the Cross of the Legion of Honor at the office of the French Military Attaché, Washington. The presentation was made by General Raymond Debenedette, Surgeon General of the French Army.

Dr. Luther H. Evans, Librarian of Congress, and Mr. Keyes D. Metcalf, director of Harvard University Libraries, were among twelve prominent librarians and museum directors who received honorary degrees from Yale University on October 19th. President Charles Seymour of Yale conferred the degrees of Doctor of Humane Letters on Drs. Evans and Metcalf.

Dr. J. Ben Robinson of Baltimore and Dr. Morris Fishbein of Chicago have been appointed as civilian consultants to the Secretary of War. Dr. Fishbein, editor of the *Journal of the American Medical Association* and Dr. Robinson, dean of the Dental School, Maryland University, will both serve as historian advisors.

Dr. William R. Bond, Yonkers, N. Y., has been appointed lecturer in physiology and endocrinology at the Medical College of Virginia, Richmond.

Dr. J. Most, who was chief of the tropical disease section at Moore General Hospital, Swannanoa, N. C., the Army center for tropical diseases, and also chief of malaria research at Kennedy General Hospital, Memphis, Tenn., was awarded the Legion of Merit for outstanding service and has been appointed consultant in tropical diseases to the Surgeon General, the Secretary of War, and the Veterans Administration.

DR. HOWARD LILIENTHAL

On the Occasion of His Eighty-Fifth Birthday

SOLOMON R. KAGAN, M.D.

Roxbury, Mass.

Dr. Howard Lilienthal occupies a high place among the great American surgeons. He advanced the knowledge and technique of thoracic surgery considerably and flourished for almost half a century as teacher, author and skillful master in his specialty.

Dr. Lilienthal was born in Albany, N.Y., January 9, 1861. He was the son of Meyer Lilienthal, a prominent merchant who was a native of Germany, born in 1830 and died in 1881. His mother, Jennie Marcus, was also born in Germany. He obtained his early education at the Albany Boys Academy, private schools and Saratoga High School, from which he graduated in 1877. After acting as a private tutor for some time, he entered Harvard University, where he received his A.B. *cum laude* in 1883 and his M.D. in 1887. For eleven months after his graduation he was the house pupil at McLean Asylum, Somerville, Mass. For two years, beginning in 1886, he served as an interne on the surgical staff of the Mount Sinai Hospital, N.Y.

On October 19, 1891, he married Mary Harriss d'Antignac, daughter of Auvergne d'Antignac of Savannah, Ga. This union was blessed by two children; Mary d'Antignac Lilienthal, now the wife of Major Thompson Lawrence, U. S. Army, and Howard Lilienthal, Jr., Private First Class, killed in action on September 29, 1918 at the breaking of the Hindenburg line. After the death of his wife, he married Edith Strode, daughter of Professor H. A. Strode of Amherst, Va.

Dr. Lilienthal began to practice medicine as a young physician, under trying financial conditions and at a time when the profession was not in a flourishing state. However, his wide medical knowledge, his charming personality and his profound interest in medical sciences helped him to rise and win the esteem of the profession, to occupy high positions as a surgeon, teacher and executive, and to receive many honors in civil and military services in recognition of his useful medical activities.

Dr. Lilienthal began his private practice in December 1888, in a boarding house at 43 East 29th Street, N.Y. During this time he was an instructor in the New York Polyclinic and for a year he was chief of the surgical staff at the Good Samaritan Dispensary in New York. Soon after this appointment he became assistant to the late Dr. Arpad G. Gerster, one of the great surgeons of his time, with whom he was associated for eight years. Dr. Lilienthal was

connected with the Mount Sinai Hospital for about fifty years, serving first as an adjunct surgeon, then an attending surgeon and finally as a consulting surgeon. He was also an attending surgeon to Bellevue Hospital (1909), then a consulting surgeon to the same institution. He was professor of clinical surgery at Cornell University Medical College for many years.

Dr. Lilienthal was commissioned as a First Lieutenant in the Medical Reserve Corps in 1911, then a Major and finally a Lt. Colonel. He went to France on February 6, 1918 and served as chief of the Surgical Service Base Hospital No. 3¹. He also performed special duty in connection with diseases of the chest at Base Hospital, No. 101 and at a number of other base hospitals before he became chief of a surgical team of Evacuation Hospital, No. 8 on the Meuse-Argonne and also to the St. Michiel front. After eleven months of service, Dr. Lilienthal returned from France and received an honorable discharge. On May 1, 1921, he was cited for the Distinguished Service Medal.

Dr. Lilienthal was for many years on the executive staff of the American Society for the Control of Cancer, American Surgical Association, American Association for Thoracic Surgery, (ex-president), New York Society for Thoracic Surgery, (ex-president), Academy of Medicine, Medical Society of the County of New York (ex-president), Harvard Medical Society (ex-president), Societe Internationale de Chirurgie, Correspondant Membre Extranger Societe Nationale de Chirurgie de Paris, Harvard Club of New York and a founder of the American College of Surgeons. He was one of the founder members of the Manhattan chapter of the Military Order of World War I and a Past Commander of the Caduceus Post of the American Legion. In addition to his achievements in the field of surgery and leadership in medical organizations, Dr. Lilienthal was also gifted in the art of painting pastels in oil. His productions in this field are attractive and of an original nature. He was president of the New York Physicians Art Club (1935) and in his student days he was tenor soloist in the Harvard Glee Club.

Dr. Lilienthal has accomplished pioneer work in surgery of the thorax (pleura, lungs, pericardium, esophagus), of the ureter, prostate and gallbladder. His work on *Thoracic Surgery* is the first comprehensive two volume book on this subject in English, presenting the entire field of theory and practice, including surgical treatment of tuberculosis, angina pectoris and emphysema. He is the first and the only surgeon who resected the thoracic esophagus for carcinoma without

¹In 1916 the Mount Sinai Hospital, N.Y., formed an organized unit in France that served as a section of the medical department of the U. S. Army during the World War. It afterwards became known as Base Hospital, Unit No. 3.

previous gastrostomy or enterostomy. He suggested that in carcinoma of the esophagus a limited resection be performed and the continuity of the esophagus established by means of a skin flap. He was the first to enunciate the principle of the removal of the gallbladder whenever that organ required treatment by operation. Although this principle was recognized at once by the great clinics of the country, it was later modified and is now accepted as final. He was the first to apply intratracheal anesthesia to a human being in 1910. The method was that of Meltzer and Auer, and the instrument employed was devised by Dr. Charles A. Elsberg, who himself anesthetized the patient. He was also the first to advise the application of x ray to demonstrate the result of osteoplastic operation for loss of substance of the tibia (skiagram showing result). This was long before the days of films, even before the days of what we now call x ray tubes. The picture was made for him by the distinguished and scientific expert Nikola Tesla, and was published in the *Medical News*, April 4, 1896. Dr. Lilienthal was also the first to apply the diagnostic aid of the roentgen ray in diseases of the jaws and teeth. This case was published in the dental journal called *Items of Interest*, in 1896. He was among the first to recommend pulmonary resection (lobectomy) for suppurative disease of the bronchi and published many reports on this subject. In his presidential address before the American Association for Thoracic Surgery in 1924, he emphasized the importance of early removal of malignant tumors of the lung. Of significance is Dr. Lilienthal's method of making an incision through the skin of the clavicle for the exposure of the phrenic nerve in extra-thoracic procedures. This method has the advantage of leaving the resulting scar almost invisible, and making identification of the nerve easier.

Dr. Lilienthal was the inventor of the two stage operation upon the prostate. He was also the inventor of the guillotine for dividing the first rib in paravertebral thoracoplasty. He suggested an original method of intercostal thoracotomy in empyema; a method of incising a parotid abscess without injury to the facial nerve distribution; a new portable operating table which is especially useful in operations upon the kidney and gallbladder. This was accepted and slightly changed by the United States Army, and was employed as the regular field operating table during World War I. Dr. Lilienthal's name was however omitted. He advocated a new and simple method of intestinal resection and an improved method for nephroureterectomy. He advocated that pulmonary abscesses should be rarely, if ever, drained primarily through the lower level for fear of contaminating uninfected pleura. For decortication in chronic empyema, he advised the removal of the thickened visceral pleura, effecting this by means of a noncollapsing thoracotomy.

Medical and surgical literature abounds with his contributions on a wide variety of subjects. There are more than three hundred references to Dr. Lilienthal's medical work. The great majority pertains to thoracic surgery. The numerous scientific articles which Dr. Lilienthal has contributed to surgical literature are a measure of his intense activity in his profession and of his skilled and humanitarian service.

Dr. Lilienthal's contributions of particular value to surgery are: his work on imperative surgery, hypernephroma, operative treatment of phthisis, tibiofibular osteoplasty, differential diagnosis by skiagraphy of a tumor of the upper jaw (probably the first endoral x ray of the teeth), serum therapy in acute surgical infectious diseases, cholecystectomy, hyperplastic colitis, extirpation of the entire colon (the second case ever reported), stump in appendectomy, the two-stage principle in operative surgery, nephroureterectomy, bilateral temperomaxillary ankylosis, pulmonary abscess and bronchiectasis, extirpation of a dermoid cyst of the mediastinum, epinephrine, electrosurgery and drainage of thoracic spaces.

Dr. Lilienthal is a recognized authority on thoracic surgery. He has enriched surgical literature with four books, numerous pamphlets, four articles in *Systems of Surgery* and about three hundred articles in various journals. He discovered valuable methods in certain aspects of general surgery and devised many important procedures in thoracic surgery. He contributed to the high standard of the surgical department of the Mount Sinai Hospital and stimulated other investigators to widen the field of surgical science. He took the lead in many medical institutions and organizations, thereby helping their progress and success. Dr. Lilienthal's many-faceted contributions place him among the American leaders in surgery.

Dr. Lilienthal died April 30, 1946.

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176 Seaver Street

Committee for Mental Hygiene

H. Edmund Bullis, executive director of the Delaware State Society for Mental Hygiene, at the annual meeting of the National Committee for Mental Hygiene stated that, "the next five years will undoubtedly be the most critical years faced by state mental institutions since World War I.

Mr. Bullis, in his address on "The states' opportunity," outlined possible lines of attack by the states on mental health problems in the light of the experience of the State of Delaware. He warned that "unless miraculous changes are brought about, our deplorable hospital standards in too many mental hospitals throughout the country will not be improved." Specifically, the speaker urged that, under the Hospital Survey and Construction Act already passed by Congress, the states work to obtain the one out of three beds for mental patients which was the intent of Congress. "The Mental Health Act, if, and when financed, will be helpful in improving training facilities for professional personnel and stimulating research."

Letter From Britain

(From Our Own Correspondent)

Professor of Biochemistry in the Medical College, Bagdad

T. F. Dixon, Ph.D., has been appointed professor of biochemistry in the Royal College of Medicine, Bagdad.

Sir Leonard Rogers' Gift for Tropical Research

The Medical Research Council has recently received a generous addition to the endowment for research in tropical medicine from Sir Leonard Rogers. He established this fund in 1926. The capital value of the fund is now about £15,000.

Departments of History, Philosophy, Science and the History of Medicine

Before 1939, the departments of History, Philosophy, Science and History of Medicine of the University College of London, the only departments of their kind in Britain, provided either full or part time postgraduate training courses of one or two years' duration. With the return of the University College to London, last year, the study of these subjects has been resumed.

British Medical Association

At the conference of the British Medical Association on July 24-25th, in London, Sir Hugh Lett was inducted as president of the British Medical Association for 1946-47. In a brief address he said that the British medical profession had been free previously from bureaucracy and the ebb and flow of politics and clinical freedom must be maintained, and he remarked, "Medicine is not so simple as building a house".

Questionnaire on National Health Service

In reply to the questionnaire on the National Health Service Bill, sent to the British Medical Students Association, composed of ten thousand medical students in schools in England, Wales and Scotland, 37.6 percent replied; of which number seventeen percent were definitely opposed to the principle of such a comprehensive service as was proposed, while eighty percent were in favor. A small number preferred that voluntary hospitals remain as they are, and a large majority disapproved of the redistribution of voluntary hospital endowments. Assuming that the National Health Service Bill will come into effect, opinion was strongly in favor of practitioners and specialists being allowed to have private practices, together with their work in the service. The prohibition of the sale of National Health Service was proposed in the bill and accepted by a majority. The Medical Practice Committee proposal to prohibit a medical man from practicing in a particular area, was not approved. The bill, as a whole, appeared to be popular, although there was disagreement on some details. A majority appeared willing to serve in National Health Service, provided that remuneration was satisfactory and that the regulations laid down by the Ministry were acceptable.

New European Scientific Periodicals

In France, some scientific periodicals which had been suppressed during the German occupation have reappeared, and at least one new journal has been published. *La Nature* and *Revue Generale des Sciences* have recovered quickly and a new journal *Atomes* has appeared. In Basle, *Experimentia* appeared a year ago. Although the general language of the journal is German, announcements are printed in French, Italian and English. It contains illustrated general articles in one or the other of the languages mentioned, as well as book reviews etc. In Wiesbaden, *Zeitschrift für Naturforschung* appeared in January of this year. It appears monthly, containing short original articles, preliminary announcements of investigations, reviews of recent work and is written wholly in the German language.

Art for the Sick

Following the wise medical axiom, "treat the patient as well as the disease", a book named *Art Versus Illness* has recently been published in England. The author, Adrian Hill, an artist, who was in a sanatorium convalescing from a sharp attack of tuberculosis, found that the time was hanging heavily on his hands. He tried to relieve the tedium by sketching in pencil and water colors and when he became stronger, he interested some of his fellow patients in his device for assuaging the monotony. Some of them took up the method with enthusiasm and a few showed marked ability. This novel form of therapy might be followed, or at any rate, be given consideration in many sanatoriums. Occupation is a potent remedy against boredom and encourages and stimulates the will to get well.

Westminster and Infants Hospitals To Be Merged

The Westminster Hospital, near Westminster Abbey, as with most of the London hospitals with great traditions; and the Infants Hospital, Vincent Square, are to be merged. The Infants Hospital will be reopened as soon as repairs, owing to war damage, are completed. Bed accommodations will be increased to one hundred and forty beds. By the fusion of this institution and Westminster Hospital, medical students of the united hospitals will have excellent opportunities for studying diseases and ailments of children at first hand. Following the recommendations made in the report of the Minister of Health survey, two convalescent homes with one hundred and sixty beds, situated in the country within easy distance of London, have recently been taken over for patients in the early stage of convalescence where rehabilitation can be undertaken.

Schooling for Subnormal Children

Among those who may need special training are the blind. In Britain, at any time after the child is two years old, parents may ask that their children be examined in order to decide whether he or she needs special educational treatment and training. The authority in any district must examine the children and provide special education if such be needed and the parents wish for it. Of course, in some,

probably in many cases, the earlier the special training is begun, the better. Children seriously disabled by blindness can always be placed in special schools. Children with partial defects of sight may be placed, if advisable, in primary or secondary schools, or in open air schools. They should sit in front in a good light and use extra large paper and soft black pencils. Experiments on lenses to magnify ordinary print are being made. In England and Wales, it is said that subnormal children constitute ten percent of the population.

Travelling Fellowships

The Medical Research Council has awarded the Rockefeller Medical Fellowships for 1946-1947 to the following: Sheila I. G. Callenden, M.D., St. Andrews, M.R.C.P., English graduate assistant, Nuffield Department of Clinical Medicine, Oxford; A. M. Jones, M.B., Manchester, M.R.C.P., England, Leverhulme Research Scholar (Royal College of Physicians), University and Royal Infirmary, Manchester; A. M. Macdonald, M.D., Edinburgh, F.R.C.P., department of pathology, Edinburgh University; J. G. Morison, M.D., Belfast, lecturer in morbid anatomy, Belfast; F. T. C. Brunty, M.D., Cambridge, M.R.P., England, lecturer in chemical pathology, St. Thomas Hospital Medical School, London; F. F. Rundle, M.D., Sydney, F.R.C.S., surgical specialist, R.A.M.C., late chief assistant and registrar, Westminster Hospital; John Swenney, M.D., M.C., M.S., Durham, assistant surgeon, department of urological surgery, Newcastle-on-Tyne General Hospital. The council has also awarded the Dorothy Temple Crosse Research Scholarship in tuberculosis to T. F. Jarman, M.D., Durham, assistant tuberculosis physician, Welsh National Memorial Association.

The Middlesex Hospital and the New National Service

The Middlesex Hospital has been established a long time and is a fair sized institution with a good record of service. It always has had an excellent staff, while its situation makes its out-patient department a particularly busy one. As is the case with most of the London hospitals, and indeed with those in all parts of England, the nurse shortage is a great handicap to its activities. At a meeting of the Court of Governors a short time ago, Mr. T. Money Coult, treasurer, said in part, that he looked forward to the future of the hospital under the new hospital service with confidence and enthusiasm. In his opinion, the new act would not change the character of the voluntary hospitals. He thought that the two hundred year old traditions of the hospital, were strong enough not only to survive, but to thrive on the changes inherent in the development of our social system. The character of an institution does not depend on acts of Parliament, but on the personalities and ideals of those who worked for it. As for those who had helped the voluntary hospitals in the past, the new act was not a signal for abdication but a challenge, and that the Middlesex Hospital would continue to rely on the interest of their friends to maintain and improve their standards.

Book Reviews

Mammary Diseases

Diseases of the Breast. Diagnosis, Pathology, and Treatment. By CHARLES F. GESCHICKTER, M.A., M.D., director of the Francis P. Garvan Cancer Research Laboratory. With a special section on treatment in collaboration with MURRAY M. COPELAND, A.B., M.D., F.A.C.S., instructor in surgery, John Hopkins Medical School. With 593 illustrations. Second edition. Philadelphia, London and Montreal: J. B. Lippincott Co., 1945. Pp. 826. Price \$12.00.

The second edition of this work has afforded Geschickter an opportunity to make a number of revisions and additions, because in recent years contributions dealing with the various aspects of mammary disease including surgery, radiology, obstetrics and gynecology, pathology, endocrinology and laboratory technology have accumulated rapidly. As in the first edition, the comprehensive treatment of the subject has necessitated the analysis of a large amount of original material and the work is based upon the patients seen in practice and on the wards of Johns Hopkins Hospital, upon follow-up studies recorded in the surgical pathological laboratory of Johns Hopkins, and upon previous data gathered by Doctors Bloodgood, Halsted and Welch. Provision is made, because of the method of arrangement of the subject matter for the reader to form his personal judgments concerning the conclusions and recommendations made.

The material is divided into seven major divisions including 1. mammary development, anatomy, physiology, etc., 2. the breast in pregnancy and lactation, 3. cystic mastitis and mammary dysplasia, 4. benign, and 5. malignant mammary tumors, 6. therapy, and 7. experimental work. Geschickter has wisely preceded the various divisions by a short discussion in which each is oriented with regard to the others and to the subject as a whole.

Geschickter emphasizes the fact that child-bearing and nursing, and the role of the sex hormones are important factors in the development of benign and malignant mammary tumors and in chronic cystic mastitis. This has engaged increased interest in the mammary gland on the part of the obstetrician, the gynecologist, and the endocrinologist.

In section 1, Geschickter points out that the breast does not achieve full development until sexual maturity. During the childbearing period new structures are added and their form and function repeatedly altered. At the menopause and extending through senescence, involutional changes occur. Because of these variations, the anatomy of the breast must be correlated with the period of life, by successive studies in the embryo, at birth, during childhood, at puberty, during the menstrual cycle, pregnancy, lactation and the menopause; the hormonal secretions of the ovary, pituitary gland and the placenta

play a controlling part through these successive stages. The necessity for a complete understanding of all of these factors, both in the normal and in the physiological abnormal periods of the female and the male, is easily understood.

The developmental physiology of the breast is next discussed. Pituitary, ovarian, placental hormones, and adrenal cortical hormones must be included among the endocrine regulators of mammary physiology. The breast proliferates during estrogenic stimulation; differentiates in response to the luteal hormones; and secretion is initiated by the lactogenic hormone of the anterior hypophysis. During pregnancy, luteal hormones of placental origin and possibly a mam-mogenic pituitary hormone are the most effective stimulants to lobule-alveolar formation. The changes presuppose adequate metabolism and nourishment. In relation to disease, Geschickter points out that the safest form of endocrine therapy for cystic mastitis is normal pregnancy and lactation. Such normal functioning diminishes but does not obviate the possibility of mammary carcinoma.

The lobular system is most sensitive to deficiencies of the sex hormones and shows regressive changes following lactation, at or after the menopause and following castration. Lobular atrophy is accompanied by regressive changes in the stroma and in the epithelial lining of the ducts.

The reviewer agrees with Geschickter that transillumination is not very important in the routine examination of the breast. Aspiration biopsy, while having a definite place seems to have more of a positive, than a negative value. In all doubtful cases, surgical biopsy seems more to the point. The reviewer must, however, take issue with Geschickter upon the advisability of waiting between surgical biopsy and radical operation.

In part 3, Geschickter takes up the subject of chronic cystic mastitis and the various forms of dysplasia in which he discusses the relationship of the latter to carcinoma.

Part 4 includes the discussion of the common forms of benign tumors of the breast, e.g., fibroadenomata and papillomatosis. The forms of mesenchymal tumor which occur in the breast are least important. The significance of, and the relation of bleeding from the nipple to the papillomatosis also receives attention. Nonindigenous tumors of the breast also occur, and with this, there is a complete discussion of the nipple and the areola.

About a quarter of the book is devoted to mammary malignant neoplasia. There is a complete classification of the various anatomical forms of cancer and of their individual manner of growth and spread. The rarity of cancer in the male breast and the advanced age at which it usually arises, as well as its many peculiarities, are undoubtedly related to the absence of any intense endocrine stimulation. The discussion is

very complete and is commensurate with the importance of the subject.

In part 5, devoted to malignant mammary tumors, sarcoma of the breast, which behaves quite differently from mammary carcinoma, is first considered. This is followed by chapters on the general nature of mammary carcinoma, by a chapter on the pathology of the disease, and by chapters devoted to the individual forms of mammary cancer.

Although between thirty and forty percent of all forms of mammary carcinoma survive the five year period, approximately three-fourths of all cases are seen sooner or later in the hopeless, recurrent or metastatic stage. The detailed study which has been given to this phase of mammary carcinoma by Geschickter only serves to emphasize the importance of the application of proper diagnostic and therapeutic measures to the earlier and more hopeful stages.

Almost one hundred additional pages are required by Geschickter for the thorough discussion of the various forms of surgical, x ray and other forms of therapy both radical and palliative. All of the methods are clearly discussed and well illustrated both in operable and in late and inoperable cases as well as in recurrent disease.

Radical mastectomy is the treatment of choice for mammary carcinoma unless there are definite contraindications to the procedure. If the lesion is operable, mastectomy without preoperative irradiation is performed, and if at operation the disease is found to be confined to the breast, routine postoperative irradiation is not given.

The reviewer does not agree with the author's recommendation that immediate postoperative radiotherapy should be reserved for cases with involved lymph nodes, or where the operator believes his operation to be incomplete. The reviewer is firmly of the opinion that postoperative radiotherapy is indicated in all cases immediately after operation, and that it is a mistake to reserve postoperative radiotherapy in the otherwise "good" cases for the late recurrences and metastases. For clinically inoperable carcinomas; whether primary, recurrent or metastatic, irradiation is the treatment of choice. Irradiation with low voltage therapy is of value in infectious mastitis, particularly of the periductal or tuberculous variety.

Controversial points in treatment and the relative merits of radical surgery, irradiation, or a combination of both forms of therapy in cancer are dealt with on the basis of the end-results achieved in a large series of cases.

It is regrettable that while statistics indicate that the incidence and number of deaths from mammary carcinoma are steadily increasing, there are no corresponding figures by which to judge improvement or decline in the national cure-rate for the disease. The sociological value of this makes it evident that it is far more humane and sensible to allow each woman to face the reality of a mass in the breast while it is still curable, than it is to allow

her eventually to realize that she has an incurable disease.

Quite a large section in the book is devoted to experimental cancer of the breast. It appears that all of the estrogens of sufficient potency for clinical use will produce mammary cancer in the rat regardless of chemical composition or physiological potency. Important species differences are evident on the basis of experiments carried out in monkeys, rabbits and rats. From a toxicological standpoint, the most important finding with respect to the use of estrogens in women is the possible production of mammary cancer by prolonged administration.

All in all, this is a very complete book, replete with valuable information. It deserves a place on everyone's book shelf.

Ophthalmology

Diseases of the Retina. By HERMAN ELWYN, M.D., senior assistant surgeon, New York Eye and Ear Infirmary. With 170 illustrations, 19 in color. Philadelphia and Toronto: The Blakiston Co., 1946. Pp. xi + 587. Price \$10.00.

It ought to be well known by this time that diseases of the retina are not merely local disturbances,—in fact they are seldom just that alone, but are often an expression of some serious systemic disease such as nephritis or cardiovascular derangement. One may very properly state that no "complete physical" is at all complete in the best sense without a comprehensive study of the retina through an ophthalmoscope, and, perhaps, of the "visual fields" as well.

Moreover, since persisting disease of the retina is always associated with partial or complete blindness, it is surprising that it is not more "specialized." Elwyn states that "complete presentations of retinal diseases have not been published since the great work of Leber in 1915 and 1916." Articles in optical journals dealing with the retina, are, of course, fairly numerous, but there is need for a systematic presentation of the pathology of this most important organ of sense.

Part I deals with retinal conditions due to disturbances in circulation and covers arteriosclerosis, diabetic retinitis, and the various blood dyscrasias. Part II has to do with diseases of the retina from vascular malformations such as Coats' and Sturge-Weber diseases, arteriovenous aneurysm etc. Part III discusses degenerative diseases as seen from an hereditary viewpoint. Part IV describes inflammatory conditions in the retina such as tuberculosis and syphilis. Part V recites gliomata and other retinal tumors. Part VI goes into diseases which lead to detachment of the retina. Part VII has to do with anomalies, and Part VIII with injuries.

This plan makes a comprehensive "overview" and is sufficiently detailed so that omissions are not to be found. The color plates are all that one can desire as to reproduction of "natural conditions", but one could wish they were more numerous, since black and white do not always convey to the reader just what the author intended. This is a thoroughly painstaking and scholarly work.

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DECEMBER, 1946

Medicolegal Notes

Causal Relationship

Causal relation between an accident arising out of and in course of claimant's employment was found to be sustained by evidence that claimant, a taxicab driver, reported for work on January 27, 1942, at his place of business and stooped down to read his meter. When he did so he felt a snap in his back. He straightened up with considerable difficulty. The injury was diagnosed as a sprain. On May 25, 1942, about four months after the injury, he was operated upon and a herniated disc removed. An award of compensation was affirmed. *Rosenberg vs. Netherland Cab Co.*, 269 App. Div. 914, 57 N.Y.S. 2d 551. Leave to appeal was denied.

Causal Connection Between Accident and Injury

Casual relationship was held established between the accident and the injury where a gas main burst and the claimant, foreman of a gang working on the gas pipes, was nearly overcome, was taken with coughing and hemorrhage from the lungs on his way home, and was treated by the employer's doctor the same day. An award of compensation was therefore affirmed. *O'Con-*

nor vs. Consolidated Gas Co., New York Appellate Division, 276 N.Y.S. 998.

An investigator for an insurance company, required to walk about in his work, was held entitled to an award for an infection resulting from a blister which developed on his great toe and burst. *Nielson vs. Fireman's Fund Indemnity Co.*, Appellate Division, 276 N.Y.S. 1008.

Examination of Deceased Insured's Physicians Before Trial of Action on Life Policy

An insurance company, sued on a policy issued by them on the life of a decedent who was the husband of the plaintiff, made an application to submit proposed interrogatories under a commission. The company was especially desirous of obtaining the examination of the physicians and of the plaintiff, the insured's widow, particularly on the issue of suicide. Specific objection was made by the plaintiff that the examination of the physicians should not be permitted and that they should not be allowed to disclose any information acquired by them in a professional capacity, as prescribed in Section 352 of the Civil Practice Act, the privileged communications statute.

The insurance company recognized the force of their position, but argued that the interrogation of the physicians on the issue of suicide should nonetheless be permitted on the examination before trial, by the open commission which it sought, and that, when the questions are propounded, the plea of privilege should then be asserted and an objection may be made thereon to a trial of the action. The decision of the court, Special Term, New York County, was to the following effect: "Since plaintiff has definitely stated that there is no waiver of the privilege, it would be improper to permit them (the physicians) to be examined with respect to any statements made to them by the decedent in that connection (the issue of suicide), though as pointed out in the *Lorde* and *Dana* cases (241 A.D. 812 and 252 A.D. 640) they may be examined within the limits therein mentioned we think, upon reconsideration that the examination of the plaintiff should be allowed and also the records of the Philadelphia Transportation Company should be made available for use in refreshing the recollection of the witnesses." *Kriebel vs. Commercial Travelers Mut. Acc. Ass'n* 63 N.Y.S. 2d 282.

In the *Lorde* case it was held that confidential communications imparted to a physician by a patient are no more permitted on an examination than on the trial of an action or proceeding in the absence of a waiver of the privilege.

"Of course, if a question is clearly not pertinent, incompetent, or immaterial, then it should not be allowed". (before a commission issued on interrogatories). *Irving vs. Royal Exchange Assurance of London*, 122 App. Div. 56, 58, 107 N.Y.S. 83, 84.

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Sprat and Wife

*Jack Sprat could eat no fat
His wife could eat no lean
And so betwixt them both
They licked the platter clean*

Some dietary idiosyncrasies among patients today are, of course, due to plain likes and dislikes. Others, like those of the Sprats of nursery rhyme fame, may be due to actual intolerance to certain foods.

Prominent among the latter group is the patient who is unable to digest meat and other protein foods. The frequency of this complaint by patients to their doctors has led one group of investigators to state that one out of every eight people over twenty-five years of age suffers to some degree from achlorhydria—the inability of the parietal cells of the stomach to produce sufficient of the enzymes essential to protein digestion.

Clinicians are now successfully control-

ling achlorhydria with D.P.S. Formula 200.

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Use of brain waves to manage an artificial leg was the hope of German scientists at the Aeronautical Research Institute of Munich.

Electrical changes always accompany a nerve impulse. The electric currents are a by-product and, except from the heart's surface, are extremely weak. Amplifiers are needed to detect and measure them.

The German artificial leg had electromechanical devices wired to the cut nerve endings in the patient's stump. The German investigators believed that galvanic electricity flowing along the nerves would supply the power impulses and that these could be controlled mentally, manipulating the leg according to the wishes of the owner. The galvanic electricity is the direct current which is a by-product of nerve impulses. The amputee would employ varying degrees of concentration on the theory that mental intensity would act like a rheostat, controlling the amount of nervous electricity and moving the leg in the manner desired. The "electrical leg" was still in an experimental stage when the war ended.

How the Germans expected weak, microvolt currents to power a leg without an unbearably heavy and bulky amplifier is unknown, as well as how the Germans expected to keep the nerve endings in the stump from dying and becoming useless as a source of current.

An electrical arm being experimented upon in this country will be powered by a single, permanent magnet motor in the elbow joint and miniature air plane type storage batteries at the waist of the amputee.

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Hormones for Ulcer Cure

Discovery of a new hormone which may prove a permanent cure for peptic ulcers was revealed recently by a group of medical scientists headed by Dr. Andrew C. Ivy, famous physiologist and vice-president of the University of Illinois professional colleges. The achievement is the culmination of ten years' research and experimentation, in which Dr. Ivy and his co-workers isolated the curative hormone from the mucous lining of the upper intestinal tract of freshly slaughtered hogs. The colorless substance, called enterogastrone, was discovered at Northwestern University Medical School. During the ten-year period, the hormone extract was used in the study of fifty-eight patients, with records of severe peptic ulcers for a duration of at least five years. Intramuscular injection of the hormone concentrate was the method of treatment. Patients participating in the tests reported relief from their ulcer symptoms after injections were given once a day, six days a week. Some patients were free from distress after two weeks of treatment. Others improved over periods up to five months.

Improvement in forty of the fifty-eight patients treated, including fifteen still receiving injections, is indicated by x ray findings, Dr. Ivy said. Only one patient among those who received six injections weekly failed to show improvement after a year.

How enterogastrone acts to arrest and cure long standing ulcers is a mystery in many ways, Dr. Ivy in-



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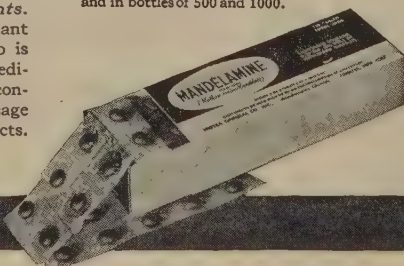
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dicated. The substance apparently decreases the secretion of acid, increases the resistance of the stomach and intestinal wall to acid injury, and promotes healing.

Grants For Tuberculosis Study

Financial grants to aid five regions of the United States in meeting serious tuberculosis problems were recently announced by Dr. Kendall Emerson, managing director of the National Tuberculosis Association. With the hope of improving unfavorable health conditions, the National Tuberculosis Association will finance special programs in certain areas of Kentucky, Tennessee, Alabama, Mississippi and Texas which have a high tuberculosis mortality and insufficient organization to cope with the situation.

The association allocated \$5,000 to each area, to be administered by the local tuberculosis associations in cooperation with state associations and state and local health departments. A professionally qualified staff will be employed for the first time by the local associations, Dr. Emerson said.

The associations chosen to carry out the concentrated programs include the Lauderdale County Tuberculosis Association, Meridian, Miss.; McCracken County Tuberculosis Association, Paducah, Ky.; Giles County and Lincoln County Associations, Tenn.; the North Alabama Association, embracing Morgan, Madison and Limestone Counties, Ala., and Karnes, San Patricio, Live Oak, Wilson and Goliad Counties, Texas.

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*Swartz & Reilly, "Diagnosis and Treatment of Skin Diseases" p. 66.

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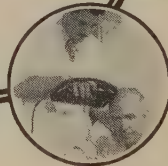
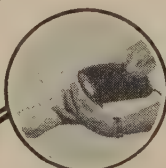
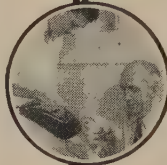
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Treatment Of Infantile Paralysis

According to the annual report of the National Foundation for Infantile Paralysis, much work has been, and is being done to solve the important practical problem of eliminating, or at least minimizing, the crippling after-effects of poliomyelitis. No treatment has been found that will completely restore function to all patients, but many improvements have been made. For example, it is known that when a muscle is temporarily deprived of its nerve supply, it tends to slowly waste away. If the muscle can be maintained in good condition during this period, its function may be restored upon recovery of the damaged nerve cell. As a result of this realization, every effort is being made today, to keep seemingly useless muscles healthy—by hot packs, massage, passive exercise and other means—then, if the nerve supply returns, these muscles will be capable of functioning. If the nerve supply does not return, the body will be in better condition to reap the benefits of surgery.

The use of the "oscillating bed", which moves up and down in regular rhythm, is being investigated as a possible adjunct to the treatment of polio patients. Studies have shown that normal persons excrete large quantities of muscle nitrogen and bone calcium when subjected to complete bed rest, and that these losses can be markedly diminished by use of such a bed. Since polio patients also excrete muscle nitrogen and bone calcium, it may work for them, too.

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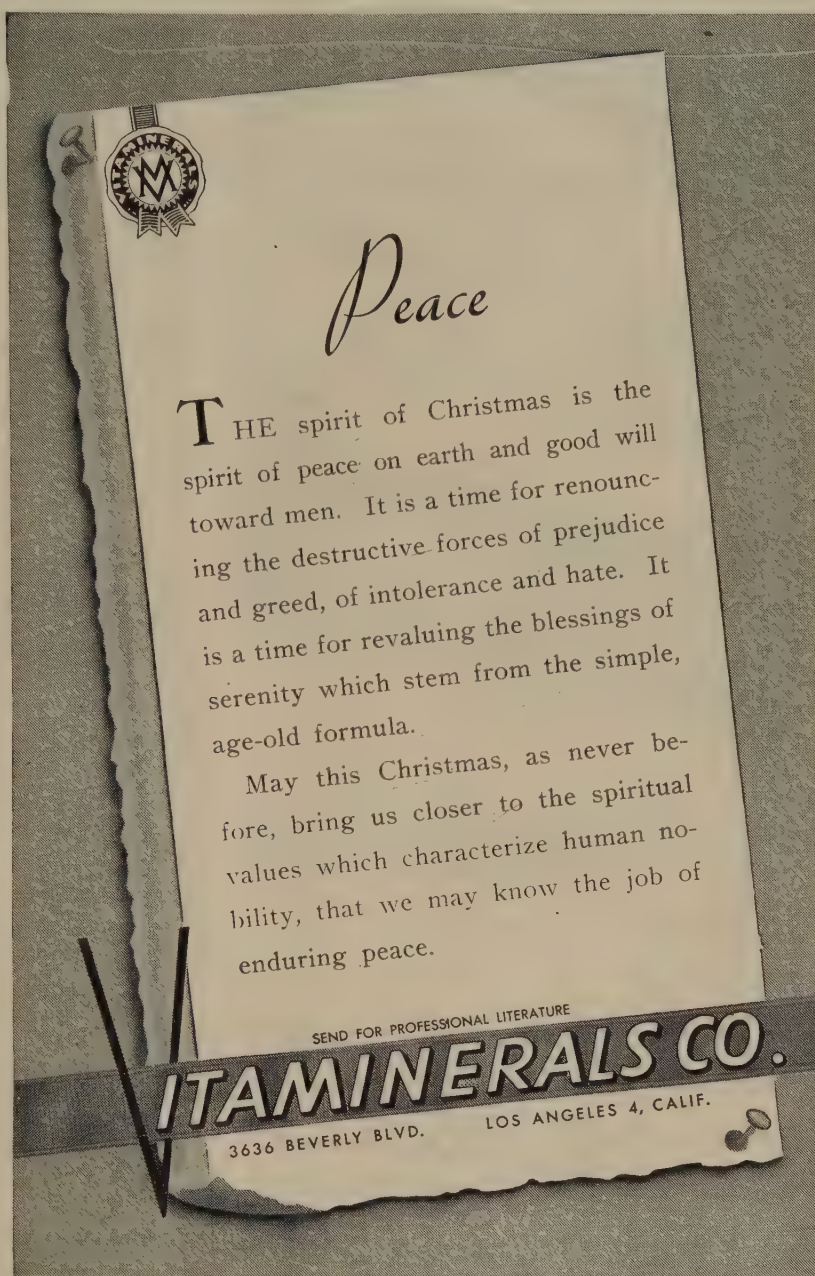
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In the field of surgery, an outstanding contribution this year was the development of a chart for the use in predicting when to perform an operation designed to bring about equalization of the long bones of the lower extremities. Of thirty patients treated in accordance with the chart, none were found to be over or under corrected by more than half an inch.

Cancer Control Program

Twenty-four physicians, representing fourteen medical schools, met on November 7th with the National Advisory Cancer Council to plan an attack on cancer from the angle of medical education. The disease now ranks second as a cause of death in this country. In announcing the meeting, which was held at the National Cancer Institute in Bethesda, Md., Dr. Thomas Parran, Surgeon General of the U.S. Public Health Service, said that these men are members of a special committee appointed to advise the council concerning the place of cancer in the medical school curriculum. Dr. Frank E. Adair, president of the American Cancer Society and a member of the National Advisory Cancer Council, heads the new committee. The appointment of this committee is a step forward in putting into operation one phase of the accelerated cancer-control program outlined last spring by the committee on cancer facilities and services of the National Advisory Cancer Council.



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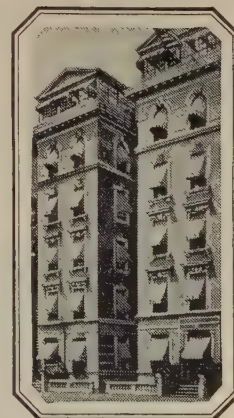
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Use of Vitamin E and Digitoxin in Heart Failure

Dr. William M. Govier, department of pharmacology, Medical Research Division of Sharp and Dohme, Inc., Glenolden, Pa., reported at the fall meeting of the American Chemical Society held in Chicago, that vitamin E and digitoxin prevented the chemical action which induces congestive heart failure in experiment. Vitamin E, digitoxin and similar compounds prevented the breakdown of a vital coenzyme which occurred from a chemical action when the muscle tissue lacked oxygen and Vitamin E, Dr. Govier said. This vital coenzyme in the tissue is the one responsible for metabolism of lactic acid.

Dr. Govier pointed out that these reactions were noted in finely-divided heart tissue under artificial conditions, and their rôle in the metabolism of the intact heart in the guinea pig or other animals is yet to be determined. The ultimate cause of congestive heart failure can usually be traced to a poor oxygen supply to the heart muscle, he added. The condition of a low oxygen level produces a marked breakdown of intracellular catalysts, particularly one called coenzyme I. One of the functions of coenzyme I is to make possible the metabolism of lactic acid, which is the preferred fuel for heart muscle contraction. Thus a low oxygen content in the heart muscle can result in a failure of metabolism of the muscle. Digitoxin is the active principle of foxglove, used since 1785 for the treatment of congestive heart failure without a clear understanding of its mode of action. Vitamin E, the so-called antisterility vitamin, recently has been shown to act as a regulator of muscle metabolism, and its absence can result in severe muscle disorders.

In the new studies, Dr. Govier continued, the influence of these and similar compounds on the metabolism of finely-divided guinea pig heart muscles were investigated by the use of the Warburg-Sumner apparatus, which can measure the rate of metabolism of tissues by measuring the amount of oxygen used and the carbon dioxide evolved by the tissue. It was found that the addition of digitoxin to normal guinea pig heart "homogenate" in an atmosphere containing oxygen had no effect. The drug also had no effect when normal heart tissue was examined in an environment low in oxygen. If heart muscle from Vitamin E-deficient animals was used, digitoxin still had no effect under oxygenated conditions, but it produced a marked stimulation of lactic acid metabolism if added to an E-deficient preparation functioning without oxygen. This stimulation was much more marked when coenzyme I was added to the reaction mixture. Vitamin E, added as the phosphate, produced a similar effect although it produced a moderate slowing of normal lactic acid metabolism.

The mechanism of this phenomenon seems to be that the heart muscle contains an enzyme, coenzyme I nucleotidase, that is capable of splitting the coen-

zyme I molecule under conditions where the tissue lacks oxygen. Vitamin E is capable of inhibiting this enzyme, allowing coenzyme I to remain intact and lactic acid metabolism to proceed. If one presents the hypothesis that the heart muscle of congestive failure is deficient in Vitamin E because of intracellular changes due to overgrowth of muscle fibers or due to low oxygen tension, then the metabolism of the heart muscle would fail, due to the destructive action of coenzyme I nucleotidase on coenzyme I. Digitoxin has an effect similar to that of Vitamin E, so that its addition to a heart muscle deficient in Vitamin E and in oxygen, results in the inhibition of coenzyme I nucleotidase with the preservation of coenzyme I.

"Compounds similar to digitoxin, such as ouabain and certain hormones, have similar actions", Dr. Govier concluded.

Grants for Cancer Research

A total of approximately \$50,000 in grants-in-aid to several American Universities for cancer research has been approved by the U.S. Public Health Service, Federal Security Agency, upon the recommendation of the National Advisory Cancer Council, according to a U.S. Public Health Service report. The council considered favorably the application of the University of Virginia, Charlottesville, for a grant of \$15,000 to conduct a study of the fractionation of proteins of normal and cancerous tissues and of reactions to chemotherapeutic agents. A second grant of \$3,550 to the same institution was recommended for work on the synthesis of compounds causing cancer cell damage.

Two separate grants were approved for the George Washington University, Washington, D.C. One provides \$2,100 for a study of the effect of vitamin E on the growth and incidence of spontaneous and induced tumors in mice. The other provides \$2,500 for a program of study of the toxicity, metabolism, physiological and pharmacological actions of substances that may be useful in destroying cancerous tissue or in halting its growth. The council recommended also a grant of \$10,000 to the University of Rochester, Rochester, N. Y., for studies of gastric secretions in patients with cancer of the stomach.

Other grants provided were: Johns Hopkins University, Baltimore, Md., for the study of the control of enzymatic activity in relation to agents that interfere with the metabolism of normal and cancerous cells; Loyola University, Chicago, Ill., to support a study of the pathogenesis of experimental brain tumors; Northwestern University, Evanston, Ill., for the study of synthesis of hydrocarbons structurally related to the steroids; University of Minnesota, Minneapolis, to support a study of gastritis in relation to carcinoma of the stomach; Carson-Newman College, Jefferson City, Tennessee, to support work on the preparation of compounds for testing in the chemotherapy program on cancer.

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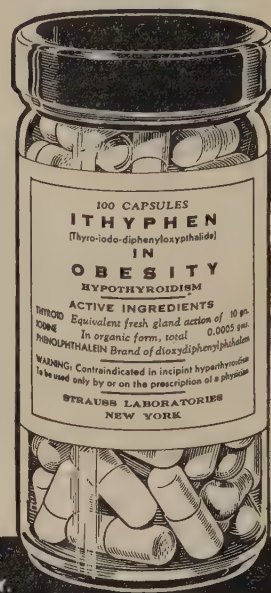
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Institute of Occupational Medicine and Hygiene

Dr. Francis G. Blake, dean, Yale University School of Medicine, recently announced the establishment at Yale of an Institute of Occupational Medicine and Hygiene, for work in the field of industrial medicine. The institute will be headed by Dr. Ronald F. Buchan, newly appointed assistant professor of industrial medicine, who will serve as clinical director of the institute.

The primary aims of the institute, according to Dr. Blake, are:

1. The training of medical students and industrial physicians, based on the belief that occupational medicine and hygiene is now a specialty.

2. Special graduate instruction, together with the opportunity for research in the field of occupational medicine and hygiene which will be available to graduate students in medicine, nursing, public health and engineering.

3. Research in occupational medicine and hygiene, in the belief that the maintenance of active research in such an important field is of teaching value to the intelligent student.

4. Consultation. The institute will be designed to assist industrial concerns on certain practical questions in the same fashion as the clinicians in the School of Medicine assist their colleagues in the practice of medicine with regard to medical, surgical, or public health problems.

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The establishment of the institute was preceded by nearly six years of planning and investigation, conducted on the premise that Connecticut, although relatively small in area, is one of the great industrial states of the Union, and the need therefore exists in Connecticut for work in the field of industrial medicine.

The program will be supervised by a special committee composed of the following members of the Yale faculty: Dean Blake, serving ex-officio; Dr. William T. Salter, professor of pharmacology; Dr. George M. Smith, research associate in anatomy; Dr. Ira V. Hiscock, professor of public health and Dr. John R. Paul, professor of preventive medicine, chairman. This committee will serve as the coordinating group which will work with Dr. Buchan, the clinical director, in planning the work of the institute at the inauguration of the program.

In undertaking the work program of the institute, the training of medical students and industrial physicians will be based on the fact, according to Dr. Blake, that occupational medicine and hygiene is now a specialty, and therefore physicians who hope to enter this field in the future should receive the necessary specialized training.

* * *

Gerhardt's disease.—Erythromelalgia is known as Gerhardt's disease. It is named after Carl Adolph Christian Gerhardt, a German pediatrician (1833-1902), whose paper on the disease with which his name is linked was published in 1892.

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Sympatol

Frederick Stearns & Co. Division, Sterling Drug Inc., Detroit, Mich., has announced that by, or before January 1, 1947, it will be ready to offer sympatol, six percent in ampul form, for injections. At present Stearns is distributing sympatol, ten percent solution in 30 cc. vials, and sympatol tablets in bottles of fifty for oral administration.

Penicillin Calcium Tablets

The Schering Corporation, Bloomfield, N. J., has announced the introduction of a new product, composed of compressed uncoated tablets containing 25,000 units of the calcium salt of penicillin and 0.3 gm. of trisodium citrate. The tablets are suggested for use in staphylococcic, streptococcic, pneumococcic, gonococcic, meningococcic and luetic infections; and are packaged in boxes of twelve tablets. Each tablet is protected by heavy aluminum

foil enabling the patient to carry his daily dosage with him without noticeable diminution of penicillin potency.

New Oral Inhaler

A new product called Eskay's Oralator, an oral inhaler presenting what the manufacturers call a revolutionary advance in the treatment of cough, has been introduced by the Smith, Kline and French Laboratories. Eskay's Oralator is an oral inhaler said to contain 2-amino-6-methylheptan, S.K.F., 350 mg., and aromatics. The manufacturers state that the vapor of this compound, when inhaled from the Oralator, relieves coughs due to colds and other inflammatory conditions of the respiratory system in a matter of seconds; produces no appreciable systemic effects; and, like S.K.F.'s Benzedrine Inhaler, is convenient, inconspicuous and may be used at any time. It is available in individual tubes.



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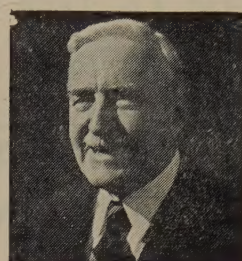
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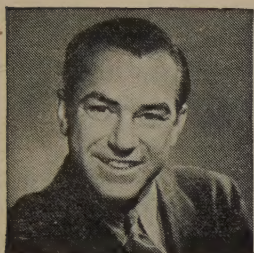
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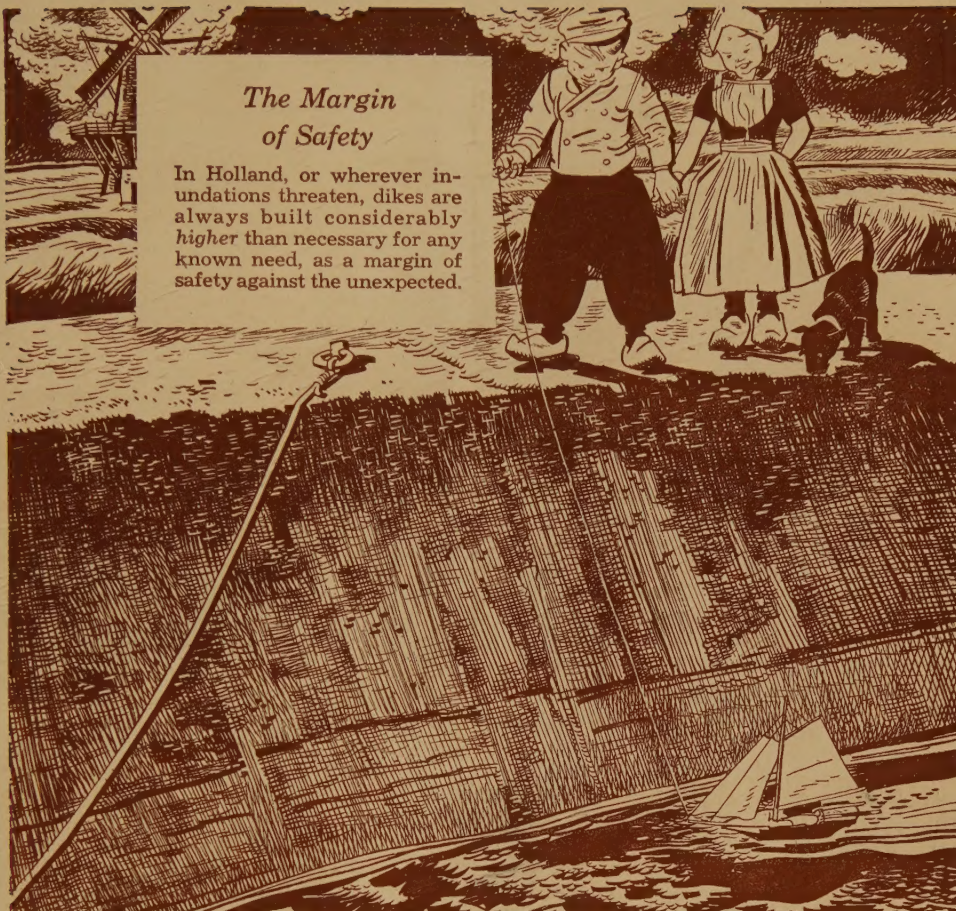


Medical Technicians Trained During the War

In the first figures made public on the number of technicians trained during the war, Major General Norman T. Kirk, the Surgeon General, reported that 114,997 enlisted men qualified as technicians from July, 1939 to June 1946. Twelve general hospitals and medical centers of the army offered courses for enlisted technicians in x ray, veterinary medicine, general medicine, surgery, dentistry, laboratory techniques, pharmacy, meat and dairy inspection, orthopedic machinery, medical equipment maintenance and sanitation. For those technicians who showed special progress, advanced courses were given.

As far back as 1913, the Army Medical Department realized the need for enlisted technicians who could relieve doctors and surgeons of routine work so vital in caring for patients. The first enlisted students enrolled at the Army Medical School, Army Medical Center, Washington, D. C., for courses in x ray. The work of the technicians was so successful that in 1915 enlisted personnel were trained in clinical laboratory procedures. That course was followed in 1920 by one in meat and dairy hygiene under qualified army veterinarians. Two years later a school for dental technicians was started. During World War I, a total of nine hundred laboratory and x-ray technicians were graduated from army schools and assigned to all echelons of the Army Medical Department. One hundred eighty-two men qualified as specialists in orthopedic brace-making to form the basis for the army's great prosthetic laboratories in World War II, when approximately fourteen thousand amputees required artificial limbs.

Since the close of hostilities, the number of centers offering courses ranging from two to four months of study and on-the-job training, has been cut from twelve to three. At present, there are enlisted technician schools at Brooke Army Medical Center, Fort Sam Houston, Tex.; Fitzsimmons General Hospital, Denver, Colo.; and Wakeman General Hospital, Camp Atterbury, Ind. Of the large numbers of enlisted technicians released to private life, many are now employed in a civilian capacity at the same jobs they learned in the army. Many pharmacy school graduates who were assigned to pharmaceutical duties as technicians, gained practical experience which aids them immeasurably in drug stores throughout the nation. Ex-GI's now may be found assisting dentists in their offices in making dental prostheses or preparing fillings. Farm and animal hospitals are profiting from the knowledge of veterinary technicians. Civilian hospital laboratories and clinics employ many ex-soldiers who learned their trade through the schooling and practical experience in a war which saw fifteen million patients admitted to army hospitals for treatment of practically every ill known to the medical profession.



The Margin of Safety

In Holland, or wherever inundations threaten, dikes are always built considerably higher than necessary for any known need, as a margin of safety against the unexpected.

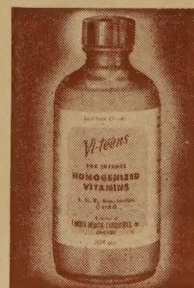
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